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Disclaimer

The University Senate reserves the right to modify the academic programs and regulations at its discretion after the posting date of the Calendar. In addition, the University reserves the right to modify the published scale of tuition and other student fees at any time before the beginning of an academic term. The most current information is available from the School of Graduate Studies. Moreover, the information contained in the Calendar or any other University document related to academic programs and regulations is subject to verification and correction by the School of Graduate Studies.

By the act of registration, each student becomes bound by the policies and regulations of Concordia University, including the Faculty in which the student is registered. Students are responsible for familiarizing themselves with the general information, rules and regulations contained in the Calendar, and with the specific information, rules and regulations of the Faculty or Faculties in which they are registered or enrolled or seek registration or enrolment, as well as the specific requirements of each degree, diploma, certificate or micro-credential sought.

Concordia University disclaims all responsibility and liability for loss or damage suffered or incurred by any student or other party as a result of delays in or termination of its services, courses, or classes by reason of force majeure, including fire, flood, riots, war, strikes, lock-outs, damage to University property, financial exigency and/or other events beyond the reasonable control of the University. Concordia University disclaims any and all liability for damages arising as a result of errors, interruptions or disruptions to operations or connected with its operations or its campuses, arising out of computer failure or non-compliance of its computing system.

About the Calendar

The Calendar is an official University document defining academic programs and the regulations which pertain to them. It is accurate as of December 1, 2022. The University Senate reserves the right to modify the academic programs and regulations at its discretion after the posting date of the Calendar. In addition, the University reserves the right to modify the published scale of tuition and other student fees at any time before the beginning of an academic term. Moreover, the information contained in the Calendar or any other University document related to academic programs and regulations is subject to verification and correction by the School of Graduate Studies.

Web address: concordia.ca/sgs

Communication of Information to Quebec Ministry of Education:
Under the terms of an agreement between Concordia University and the Quebec Ministry of Education, approved by the Quebec Access to Information Commission, Concordia University is required to transmit to the Ministry some or all of the following information concerning its students: the students' permanent code, complete name, date of birth, gender, father’s complete name, mother’s complete name and place of birth. This information is being transmitted, at the Ministry’s request, in order to provide the Ministry with the tools to properly calculate funding for Concordia University, for planning purposes and to ensure the proper management of public funds.

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University overview

Mission Statement

The School of Graduate Studies provides academic leadership and administrative support in fulfillment of Concordia University's commitment to deliver high-quality education and training to graduate students and postdoctoral fellows. Working closely with departments in and across all Faculties, the School fosters the continued success of existing programs and promotes the development of new programs that will attract top students both nationally and internationally. By valuing the integrity of different forms of knowledge acquisition and production from research and artistic creation to professional training and accreditation, the School serves as a hub for innovative thinking about how best to enrich the quality of graduate students' and postdoctoral fellows' experiences at all levels. Through its dedication to program excellence, as well as in its responsibility for ensuring the highest standards of teaching, supervision, and research training, the School affirms the vital contribution that graduate studies and postdoctoral training make to the advancement of knowledge and betterment of society

Academic calendar

- Academic calendar dates
- Deadlines for award competitions and scholarships

Academic regulations

Academic year

The academic year begins with a Summer Session (May to August) followed by a Regular Session (September to April).

Summer Session:
The Summer Session covers all courses offered from the beginning of May and the end of August.

Regular Session:
The Regular Session is divided into a Fall Term (September to December) and a Winter Term (January to April), each of 15 weeks' duration, including a reading week and the examination period. The Academic Calendar at the beginning of this publication contains precise dates for the beginning and end of classes.

Residence

Minimum Residence for Doctoral Degrees. The minimum residence requirement for a doctoral degree is 6 terms (two years) of full-time graduate study beyond the master's degree, or the equivalent in part-time study, or 9 terms (3 years) of full-time graduate study beyond the bachelor's degree for those students who are permitted to enroll for doctoral studies without completing a master's degree. It should be understood that this is a minimum requirement, and that a longer period may be necessary in order to complete all the work that is required for the degree. In special circumstances, departments may permit or require candidates to spend a period of time in residence at another institution, subject to the approval from the School of Graduate Studies. When such arrangements are made, it is understood that the candidate will be engaged in full-time study, and that the institution will be able to provide appropriate supervision and research facilities. In all cases, candidates for a doctoral degree from Concordia University must complete at least two years of graduate study at this university, including the final year of the required residence period.

Minimum Residence for Master's Degrees. The minimum residence requirement for the master's degree is 3 terms (one year) of full-time study, or the equivalent in part-time study. This requirement must be met regardless of the amount of graduate work previously completed in any other program or at any other university. Certain master's programs require longer periods of minimum residence.

Time Limits

Students who exceed the time limit as outlined below will be withdrawn from their program. Under exceptional circumstances a time limit may be extended upon the recommendation of the Graduate Program Committee and the approval of the Dean of Graduate Studies.

Time Limits for Doctoral Degrees. All work for a doctoral degree must be completed within 18 terms (6 years) of full-time study or 24 terms (8 years) of part-time study from the time of original registration in the program.

Time Limits for Master's Degrees. All work for a thesis-based master's degree for full-time students must be completed within 9 terms (3 years) from the time of initial registration in the program; for part-time students the time limit is 15 terms (5 years). In the case of the EMBA, the time limit for full-time students is 6 terms (2 years). The time limit for all other course-based master's programs is 15 terms (5 years).

Time Limits for Diploma Programs. All work for a diploma program must be completed within 12 terms (4 years) from the time of initial registration. In the case of the Diploma in Clinical Psychology, the time limit is 15 terms (5 years).

Time Limits for Graduate Certificate Programs. All work for a graduate certificate program must be completed within 9 terms (3 years).

Time Limits if transferring from a PhD to Master's in a similar area of research would be granted a time limit based on the expected completion (4 years), less the number of years spent in the PhD program, or 2 years, whichever is greater; or the equivalent for part-time study.

Time Limit if transferring from a Master's to a Diploma in a similar area of study would be granted a time limit of 2 years, less the number of years in the Master's, or 1 year, whichever is greater; or the equivalent for part-time study.

Time Limit if transferring from a Diploma to a Master's in a similar area of study would be granted a time limit of 3 years, less the number of years in the Diploma; or the equivalent for part-time study.

Academic standing

The academic progress of graduate students is assessed at the end of every term. To be considered in good standing, students in doctoral programs must maintain the F Rule, C Rule and an Assessment Grade Point Average (AGPA) of at least 3.00 based on a minimum of 12 credits.

Students in master's, graduate diploma and graduate certificate programs must maintain a minimum GPA of 2.70.

For program specific requirements, please refer to the Program section of the Calendar.

Independent and Visiting students are only subject to the F Rule.

F Rule

Graduate students who receive a failing grade in the course of their studies will be withdrawn from the program unless continuation in the program is requested by the student's program or Faculty and approved by the Dean of Graduate Studies. If withdrawn from program, students may apply for re-admission (see Withdrawal for Academic Reasons.) Students who receive another failing grade after re-admission will be withdrawn from the program and will not be considered for re-admission.

C Rule

Graduate students who receive more than one *C* grade during the course of their studies will be withdrawn from the program unless continuation in the program is requested by the student's program or Faculty and approved by the Dean of Graduate Studies. Course-based programs in the John Molson School of Business do not have a C Rule. Individual programs may have more stringent regulations; students should check their program's entry or with the Graduate Program Director.

Students who have been withdrawn may apply for re-admission (see Withdrawal for Academic Reasons in Graduate Admission section). Students who receive another *C* after re-admission will be withdrawn from the program and will not be considered for re-admission. Students should refer to the section on Academic Standing in their program's calendar entry.

Qualifying Program B- Rule

Graduate students who receive a grade lower than B in a course in a Qualifying Program will be withdrawn from the program unless continuation in the program is requested by the student's program or Faculty and approved by the Dean of Graduate Studies.

Assessment Grade Point Average (AGPA)

The academic progress of graduate students is monitored at the end of every term. To be considered in good standing, students in doctoral programs must maintain an Assessment Grade Point Average (AGPA) of at least 3.00 based on a minimum of 12 credits.

Students whose AGPA falls below 3.00 are considered to be in poor standing. Students whose AGPA falls below 3.00 for any two assessment periods are considered to be in failed standing. Individual programs may have more stringent AGPA regulations; students should check their program's calendar entry or with the Graduate Program Director.

Students in master's, graduate diploma and graduate certificate programs must maintain a minimum GPA of 2.70 during their program of study in order to be considered in good academic standing. Students whose AGPA falls below 2.70 are considered to be in poor standing. Students whose AGPA falls below 2.70 for any two assessment periods are considered to be in failed standing. Individual programs may have more stringent AGPA regulations; students should check their program's calendar entry or with the Graduate Program Director.

Students in qualifying programs or concurrent qualifying programs in undergraduate courses will be assigned a grade in accordance with the undergraduate grading system for undergraduate courses. For all courses a B grade is required in order to ensure that the minimum standards of the graduate grading system are maintained. In addition, students must meet specific program requirements for good academic standing.

GPA graduation requirement

In order to graduate, students in doctoral programs must have a cumulative GPA of at least 3.00. Students in master's, diploma and graduate certificate programs must have a cumulative GPA of at least 2.70 in order to graduate. Individual programs may have more stringent regulations; students should check their programs' regulations or with the Graduate Program Director.

Thesis supervision

Students who do not have a supervisor when required by their program will be withdrawn from that program. Students may request to be allowed to remain registered in the program after this point for a maximum of four months in order to secure a new supervisor.

Graduation application

Degree, diploma, and certificate candidates who expect to complete their program requirements in a particular term must apply to graduate by filling out the online Graduation Application Form. The form should be completed by **January 15** for spring graduation and **July 15** for fall graduation.

Note: In programs requiring a master's or doctoral thesis, there are deadlines for thesis submission which must be met if a student is to graduate at a particular graduation. These deadlines are outlined in the Academic Calendar.

Credit system

Concordia University has adopted a system of assigning credits to the components of its graduate programs. This system was recommended by the Conseil des Universités du Québec for implementation in all the universities of the Province of Québec. The fundamental concepts in this system are defined in the Rapport du Conseil des Universités sur les Diplômes Universitaires. The credit base takes into account the total activity of the student in terms of lectures, seminars, conferences, laboratories, studio or practice periods, practica, and research, including, where appropriate, the number of hours of personal work required, as estimated by the university. A credit is considered to represent a minimum of 45 hours devoted by the student to an educational activity as described above.

Language of instruction

While the language of instruction in Concordia University is normally English, students have the right to write their assignments and examinations in French. It must be understood, however, that in a case where a professor cannot read French, the assignments and examinations must be read by another professor with sufficient French language proficiency. Students are advised to enquire of the instructor at the beginning of the course whether assignments and examinations written in French will be read personally by the professor. Notwithstanding the above, language and literature departments may require assignments and examinations to be written in the language being studied.

Grading system

The grades and other notations described and defined in this section are those used for the evaluation of graduate courses and certain other graduate degree and diploma components. Some programs have academic regulations supplementing these definitions and descriptions. Such additional regulations define what is required in terms of grades for a student to be considered *in good standing* in a program. Refer to the relevant program section of this calendar and, where the academic regulations for a program have not been stated, consult the Graduate Program Director. Grades used for graduate courses or courses taken as part of a graduate program are *A+*, *A*, *A-*, *B+*, *B*, *B-*, *C*, *Pass*, *F*, *Fail*, *Fail/Absent* (*F/ABS*), *Audit* , *In Progress (IP)* and *In Progress Extension (IPE)*.

The weight accorded to the various elements of the performance of each student is at the discretion of the instructor or instructors responsible for the course. At the beginning of a course the instructor will provide students with the evaluation scheme in writing. The scheme cannot be altered without appropriate notice.

1. Each doctoral and master's program has a rule which limits the number of *C* grades a student may obtain, and still meet the degree requirements. Diploma and Certificate programs also limit the number of *C* grades a student may obtain. (See C Rule above).

2. *Fail* or *F* describes work below the acceptable standard in a course. When a student receives a *Fail*, *F* or a *Fail/Absent (F/ABS)* grade in any course taken as part of a graduate program, it is the responsibility of the department or Faculty to recommend to the School of Graduate Studies whether or not the student should be permitted to continue in the program.

3. *Fail/Absent (F/ABS)* is used when the instructor at the end of the course has not received the required work and has not granted an extension of the deadline. It is a permanent grade.

4. Using the grade point equivalents listed below, *grade point averages* are calculated and used to measure academic achievement: *A+* = 4.30, *A* = 4.00, *A-* = 3.70, *B+* = 3.30, *B* = 3.00, *B-* = 2.70, *C* = 2.00, *Fail* = 0, *F* = 0 and *Fail/Absent (F/ABS)* = 0.

5. *Audit* is the grade assigned to courses that are not taken for credit and which do not count towards the completion of a program. A course taken for this grade must be so designated at the beginning of the term. Students may audit a graduate course with permission of the Graduate Program Director of the program in which the course is offered, once the director is satisfied that the student is qualified to take the course. Auditing students are expected to attend class, but are not required to complete assignments or write examinations.

6. The *In Progress (IP)* notation is used when a student, who has completed a substantial portion of the course, cannot complete the course in time for reporting grades due to circumstances beyond their control. This notation may be assigned only to individual students, not to entire classes. The *IP* notation is only used in combination with a valid course grade (e.g. "*B/IP*", "*F/IP*"). The grade is assigned on the basis that the missing work is graded as zero **and included** in calculating the overall grade. Students must complete courses with *IP* notations **by the DNE deadline** of the following term or the Fall DNE deadline for Summer term courses (see Academic Calendar for precise dates). If the course is not completed, the *IP* notation will be removed at the DISC deadline and an *INC* notation will be recorded along with the grade and the grade will become the permanent grade. If the course is completed after the DNE deadline the grade will not be changed (e.g. "*B/INC*", "*F/INC*"). The Incomplete (*INC*) notation is used to indicate that the student did not complete the required work for the course.

 Under exceptional circumstances an additional period of In Progress Extension (*IPE*) may be granted. Requests for an *IPE* notation should be submitted as a student request, supported by relevant documentation including confirmation of the instructor's support for a further extension prior to the DNE deadline.

 In-Progress Leave (IPL) is an administrative extension to indicate the student is on a Leave of Absence and the *IP* or *IPE* grade reporting deadline is extended until the end of the leave.

 In-Progress (IPM) is an administrative notation to indicate the student has been granted an exceptional extension until a specific date to complete the work.

 Either graduate programs or the School of Graduate Studies may prevent/remove course registrations on the basis of outstanding *IP/IPE* notations on the student record.

 Grades with *IP*, *IPE*, *IPL* or *IPM* notations are not included in GPA calculations.

 Grades with an INC notation are included in the GPA calculations.

 Students will be required to complete the course(s) with *IP/IPE* notations by the DNE deadline following their return from Leave.

Academic Term	IP Deadline for student to submit outstanding work	IP Deadline for professor to submit final grade	IPE Deadline for student to submit outstanding work	IPE deadline for professor to submit final grade
Summer	DNE of Fall Term	DISC of Fall Term	December 15 of Fall Term	End of Fall Term
Fall	DNE of Winter Term	DISC of Winter Term	April 15 of Winter Term	End of Winter Term
Winter	DNE of 1st Summer Term	DISC of 1st Summer Term	August 15 of Summer Term	End of Summer Term

7. Accepted (ACC) or Rejected (REJ) is the final grade given to a thesis or thesis-equivalent. Under exceptional circumstances, the School of Graduate Studies can apply a grade of F.

8. *Pass or Fail* is the final grade normally given to comprehensive examinations, internships and language proficiency examinations. Students who fail a comprehensive examination may be permitted to sit for a second examination. Students who fail a language proficiency examination may be permitted to make no more than two further attempts to satisfy the requirement.

In addition, the following are notations which are not grades:

1. *Discontinued (DISC)* is used to indicate that the student withdrew from the course in question before the withdrawal deadline. The notation appears permanently on the student record and official transcript. It carries no grade point value and does not count in assessments of academic standing, but does count towards a student's status (i.e. full- and part-time).
2. *Medical (MED)* is used on students' records to indicate that long-term illness has rendered it not possible for the student in question to complete the academic requirements of a given course or activity. It is a permanent notation; it has no grade point equivalent.
3. *No Credit (No-Cr)* indicates that a student has not fulfilled the requirements of the course. This notation is limited to the Diploma in Chartered Professional Accountancy program, which is recognized as a qualification to write the Common Final Examination (CFE). A student receiving a No-Cr notation must take the tutorial section of this course in the next term in which the course is offered.
4. *Pending (PEND)* is used when a grade has not been reported at the time of production of a transcript.
5. *Replace (REPL)* indicates that the credit earned for this course cannot be retained because it will be replaced with another course as specified by the program. The grade will contribute to the CGPA.
6. *Must Repeat (MREP)* indicates that the credit earned for this course cannot be retained because it is a repetition of a course, or of similar course material, already completed. The grade will contribute to the CGPA.
7. *Valid (VALD)* identifies a new course with the same course name and number as other courses previously enrolled in. It is not considered as a repetition. The grade and credit will contribute to the CGPA.

In cases where the original grade is not calculated correctly, the final grade can be altered.

Grade submission deadlines

All final grades for all courses are required to be submitted no later than seven calendar days after the University's last scheduled final examination.

Supplemental examinations

Graduate students are not permitted to write supplemental examinations.

Comprehensive examinations

Comprehensive examinations are under the auspices of individual programs and students are advised to consult with their Graduate Program Director concerning program regulations. While the School of Graduate Studies' general regulations permit a student to write comprehensive examinations a second time, individual programs may have a more stringent regulation in this regard (i.e., not permitting a second writing) and students should verify this with the program. Comprehensive examinations are graded as Pass or Fail. In cases where two attempts are permitted, an initial grade of fail is not reported on the student's academic record or academic transcript.

Note: Unless expressly permitted by the instructor, the possession of electronic communication devices is prohibited during examinations.

Admissions

All graduate programs offered by Concordia University, except for the Individualized Program (INDI), are attached to one of the three Faculties or to the John Molson School of Business. The Individual Program (INDI) is attached to the School of Graduate Studies. All graduate programs are under the general supervision of the Council of the School of Graduate Studies and its chair, the Dean of Graduate Studies.

A listing of all current degree programs and fields of advanced study is provided in the Programs section. The degree programs are described fully in the Calendar's Faculty sections: Faculty of Arts and Science, Gina Cody School of Engineering and Computer Science, Faculty of Fine Arts, John Molson School of Business, and the School of Graduate Studies. Existing degree programs are a reflection of research interests, of the professors and researchers on staff, and of the needs of the community served by the University. Inquiries concerning these degree programs should therefore be sent to the relevant program.

In conjunction with the degree program, the Dean of Graduate Studies is responsible for ensuring the quality of the admission of students to the doctoral, master's, diploma and certificate programs of the University. Admission is based on an assessment of the student's qualifications for the proposed program of study and entails specific credit, residence, course, thesis, and examination requirements, which vary from program to program.

The application process

Applicants to graduate programs should apply online; more information is available on the Graduate Studies website.

Applicants may apply as full-time or part-time students; refer to Student Classification for more information.

Admission application deadlines

Admission Application Deadlines vary depending on the degree program. Applicants should contact the degree program to which they are applying for specific admission deadlines. Applicants should arrange for all required documentation to be in the appropriate office by the deadline. Please note that many programs only admit new students for the term which begins in September.

New students (applying for admission to a Master's or Doctoral program) are now automatically considered for all Entrance Awards; there is no separate application process. Refer to Awards page for further information.

Graduate application fee

There is a $100.00 (Canadian) application fee per application. The fee is payable on-line by Visa, MasterCard, or international Wire Transfer. This application fee is not refundable under any circumstances, nor can it be used towards tuition. It is not transferable to a session other than that for which the student is applying.

Admission requirements

Applicants to Concordia University must meet the minimum university requirements to be considered for admission. Some degree programs may have additional or stricter requirements. These requirements are detailed in the degree program's calendar section and applicants should review this information. The minimum requirements to be considered for admission to graduate studies at Concordia are listed below.

Concordia University evaluates international degree equivalencies and Canadian equivalencies upon receipt of an application.

Academic requirements

To be considered for admission to Doctoral-level studies, the applicant must have completed a master's/magisteriate degree (or equivalent) with high standing.

To be considered for admission to Master-level studies, the applicant must have a bachelor's/baccalaureate degree (or equivalent) with high standing (e.g., with honours, or the Concordia equivalent of a GPA of at least 3.00 on a scale of 4.30).

To be considered for admission to most graduate diploma or graduate certificate-level studies, the applicant must have completed a bachelor's/baccalaureate degree (or equivalent) with the Concordia equivalent of at GPA of at least 2.70 on a scale of 4.30.

Some degree programs may have additional, or higher, academic requirements. Applicants should review the Calendar program section of the degree program in which they are interested.

Language proficiency requirements

English is the main language of instruction at Concordia University. Applicants who meet one of the following three conditions will be exempted from the English language proficiency test requirement:

- Completion of a minimum of three full- years of study at the undergraduate or graduate level at an accredited university in one of the following countries;
- Completion of a Quebec Diploma of Collegial Studies (DEC) **and** a university degree at a Quebec university;
- For JMSB applicants applying to the professional programs, a minimum of three years' full-time work experience in an English milieu, and a successful personal interview.

Applicants, regardless of citizenship, who do not meet one of the three conditions outlined above and whose primary language is not English, will be required to provide proof of English proficiency prior to their admission to Concordia University.

The following are Concordia University's accepted tests and required minimum scores:

Test of English as a Foreign Language (TOEFL)

- The minimum acceptable internet-based TOEFL score for programs in Arts and Science, Fine Arts and the School of Graduate Studies: 90 with at least a score of 20 in each of the four components (some graduate programs may require higher scoring).
- The minimum acceptable internet-based TOEFL score for programs in John Molson School of Business: 95 with at least a score of 20 in each of the four components.
- The minimum acceptable internet-based TOEFL for programs in the Gina Cody School of Engineering and Computer Science: 85 with at least a score of 20 in each of the four components.

International English Language Testing System (IELTS)

- The minimum acceptable IELTS score for programs in Arts and Science, Fine Arts and the School of Graduate Studies: 6.5 with at least a score of 6.5 in each of the four components (some graduate programs may require higher scoring).
- The minimum acceptable IELTS score for programs in John Molson School of Business: 7.0 with at least a score of 6.5 in each of the four components.
- The minimum acceptable IELTS score for programs in the Gina Cody School of Engineering and Computer Science: an overall score band of 6.5.

Test results that are more than two years old at the time of application will not be accepted.

In all cases, the University reserves the right to require a language proficiency test if it is deemed necessary.

Please refer to the Graduate Admission page for further information on the Language Proficiency requirements, including additional acceptable tests and related scores.

Permanent Code

The ministère de l'Éducation, du Loisir et du Sport (MELS) requires all registered students to have a "permanent code" (a unique identifying number) which is assigned by MELS.

Applicants who do not provide a valid code with their application must apply for one upon receiving admission to Concordia University. Information on how to apply for a permanent code and a link to the on-line "Permanent Code Data Form" can be found at the Permanent Code website.

Students who do not submit or apply for a permanent code will be charged a permanent code surcharge.

Academic Success & Integrity Module (ASIM)

To be permitted to register for future courses, all graduate students must complete the **Academic Success & Integrity Module** before the DNE deadline of the first term of admission. Students who fail to submit the ASIM online module will be blocked from registering for the following academic term(s) and from making changes to their current registration until the module is completed.

Prerequisite courses

Applicants who are deficient in certain courses may be required to take prerequisite courses either as an Independent student or as a student in a Qualifying Program. Refer to Independent Students and Qualifying Programs.

Students taking prerequisite courses are charged tuition and other fees on a per credit basis for these courses. See Tuition & Fees.

Transfer credits and exemptions

Student may be entitled to transfer credit from previous studies to their new program and/or be exempted from certain courses. Refer to Transfer Credits and Exemptions for additional information.

Qualifying program

Prerequisite courses

Depending on the degree program and on the number of courses required, prerequisite courses taken in a Qualifying Program may be taken prior to admission into a graduate program or concurrently with the graduate program.

Qualifying Program (prior to admission to a graduate program): Applicants who have completed an undergraduate program leading to a bachelor's degree, but whose preparation is inadequate for direct admission to a graduate program, may, upon recommendation by a department, be permitted to register for a Qualifying Program of advanced undergraduate or graduate studies. Students admitted to a Qualifying Program take undergraduate or graduate courses as preparation for application to a graduate program.

- The minimum qualifications for entry into the Qualifying Program are as follows: at least 24 course credits in the proposed field of study as determined by the program; at least a *B* average in these courses (*B-* for Diploma and Graduate Certificate courses), with no grade lower than *C*; and at least a *C* average in their final two undergraduate years.
- Qualifying Programs consist normally of four or five senior undergraduate courses. In certain exceptional cases, students may be required to take more than this number, and spend more than one full year as qualifying students.
- Qualifying students must have their program of study approved by the relevant Graduate Program Director prior to each registration period.
- **Satisfactory completion of the courses taken in a Qualifying Program does not guarantee automatic admission to a graduate program.** Students must apply, or reapply, for admission to graduate studies during or after the Qualifying Program. Their applications are considered along with all other applications received at that time, and do not take priority over those of other applicants who may be better qualified.
- Students taking prerequisite courses are charged tuition and other fees on a per credit basis. See Tuition & Fees.

Qualifying Program (concurrent): Students admitted to a graduate program and a concurrent Qualifying Program are required to complete prerequisite courses at the same time as they complete their Graduate Program requirements. The Qualifying Program normally does not exceed 12 credits but may consist of graduate and/or undergraduate courses.

- A student who does not successfully complete a concurrent Qualifying Program within the first three terms will be blocked from future registration. Standard 'May Continue' or 'May Not Continue' Student Requests will apply.
- The prerequisite courses are completed in addition to the regular graduate program and form part of the student's degree requirements for graduation.
- The prerequisite course(s) must be completed during the first year of study in the graduate program.
- Any grade lower than a B in a course from a Qualifying Program is considered a failure.
- Qualifying students must have their program of study approved by the relevant Graduate Program Director prior to each registration period.
- Students are charged tuition and other fees for the prerequisite courses in addition to fees charged for the student's graduate program of study. See Tuition & Fees.

A student who does not successfully complete a concurrent Qualifying Program within the first three terms will be automatically placed on academic probation. Standard 'May Continue' or 'May Not Continue' student requests will apply.

Deferment of admission

Applicants who are admitted into the program but wish to defer their admission due to extenuating circumstances, such as non-processed visa (supporting documents may be required), may, at the discretion of the Department, be granted this request once within one year. Applicants should consult their Department, as deferrals are not accepted by all programs. The request to change (defer) admission can be found in the Forms for Students section.

Fast track to PhD programs

Fast Tracking describes a process whereby exceptional students are admitted to PhD programs without a master's/magisteriate degree in the same discipline.

Students who follow this process must show high academic performance or potential, evidenced by an outstanding GPA, appropriate research publications in the field of study, a research topic at the master's/magisteriate level which is advanced enough for a doctoral thesis proposal, or other similar demonstrations of achievement.

Students who are accepted for accelerated admission and who are currently registered in a master's/magisteriate degree program, can enter directly into the PhD program without completing all of the master program requirements.

In some cases, an outstanding student who holds a bachelor's degree can progress directly into a PhD program.

External Program Transfer

Transfers from one program to another outside of the originating program's discipline and to a program in another Department requires the submission of a new application (e.g., PhD (Biology) to PhD (Chemistry)). External program transfers include transfers from another institution to Concordia University.

External-to-Concordia transferred credits cannot account for more than one third of the total course credit load of the destination program.

Internal Program Transfer

Students requesting a program transfer within the same discipline and within the same Department are not required to submit a new application. Such students must instead submit a Service Request for internal program transfer along with any supporting documents required by the new graduate program.

Financial credit

Internal program transfers between thesis-based programs where research continuity is maintained (i.e., thesis-based master's to PhD, or PhD to thesis-based master's) will result in financial credit being applied on a per-term basis.

External program transfers between thesis-based programs (i.e. PhD in Biology to PhD in Chemistry), will typically result in financial credit applied on the course credits transferred.
For internal or external program transfers from thesis-based to course-based programs (i.e., PhD to course-based master's), students will be financially responsible for the remaining credits of the program following approved academic credit transfers.

For internal or external program transfers from course-based to thesis-based programs (i.e., course-based master's to PhD), financial credit will be applied on the course credits transferred.

Financial credit following transfers from other institutions to Concordia University will be determined on a per course credit basis relative to the Concordia equivalent

Withdrawal for academic reasons

Students who are withdrawn for academic reasons, will not be eligible to reapply for at least three terms. To qualify for admission, students are required to submit an application and meet competitive admission criteria.

Re-instatement of withdrawn students

Students who withdrew or have been withdrawn from a graduate program for non-academic reasons (e.g. non-continuous registration) may wish to submit a Student Request form requesting re-instatement to the program. Refer to the Classification and Registration for more information.

Financial credit

Internal program transfers between thesis-based programs where research continuity is maintained (i.e., thesis-based master's to PhD, or PhD to thesis-based master's) will result in financial credit being applied on a per-term basis.

External program transfers between thesis-based programs (i.e. PhD in Biology to PhD in Chemistry), will typically result in financial credit applied on the course credits transferred.
For internal or external program transfers from thesis-based to course-based programs (i.e., PhD to course-based master's), students will be financially responsible for the remaining credits of the program following approved academic credit transfers.

For internal or external program transfers from course-based to thesis-based programs (i.e., course-based master's to PhD), financial credit will be applied on the course credits transferred.

Financial credit following transfers from other institutions to Concordia University will be determined on a per course credit basis relative to the Concordia equivalent

Awards

- Awards information
- Deadlines for award competitions and scholarships
- Graduate Awards Adjudication Committees

Graduate Awards Adjudication Committees

Graduate Awards Adjudication Committees

Graduate Awards Committees at the School of Graduate Studies have the overall responsibility for selecting candidates for the externally-funded awards from the provincial and federal granting agencies, external associations and foundations, and designated internal awards managed at the School of Graduate Studies. Each committee consists of faculty members from the respective faculties who can assess applications against the selection criteria and objectives of the funding opportunity in the areas of research covered by the committee. Committee members must be tenured or tenure-track full-time faculty members. Under highly exceptional circumstances, a committee member not meeting the above criteria may be considered by the Dean of Graduate Studies.

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Classification of students and registration

Classification of students

Independent students

Applicants who do not have the minimum qualifications for direct admission into a degree program may request to take courses as an independent graduate student. Likewise, graduate students who are enrolled in degree programs but who wish to take courses outside their degree requirements may request to take undergraduate courses as independent undergraduate students or graduate-level courses as independent graduate students

Independent graduate students enroll in a particular graduate course, without being admitted to the degree program which offers the course.

Normally, independent graduate students take no more than the equivalent of two graduate courses per term, and no more than the equivalent of four graduate courses from the courses of any graduate degree program up to 12 credits.

Only applicants who have the qualifications for admission to the course in question will be given permission to take the course. In every case, permission of the Graduate Program Director and/or Faculty Student Affairs Office must be obtained. Meeting the minimum requirements of an individual course does not guarantee entry to that course, as preference will be given to degree program students.

Independent Graduate Students are subject to the fees and regulations applicable to such categories of students.

Credits earned by independent graduate students may be considered for transfer credit in the event that the students are subsequently admitted to a graduate degree program. Please note that financial credit will not be awarded.

An independent graduate student who receives an *F* grade is no longer allowed to continue studies.

Graduate independent students are eligible to audit courses. Refer to the section on Auditing Students.

Visiting students

Graduate visiting students are graduate students from other universities who have been authorized by their home universities to take graduate courses at Concordia University. They are subject to the regulations of Concordia University.

Graduate students from other Québec universities must submit requests for courses through the Inter-University Agreement (AEHE/BCI) process.

Graduate students from Canadian universities outside of Québec must complete the Graduate Transfer Agreement between Canadian Universities (CAGS) form or obtain a letter (or form) of authorization from their home university. This document must be submitted to the degree program offering the course in which they are interested.

Graduate students from universities outside of Canada must contact Concordia International if their home university has an exchange agreement with Concordia. They will be considered as Visiting Exchange students. If no exchange agreement exists, the student must obtain a letter of permission from their home university stating which courses they are permitted to take. The students must also provide information on their home university, official transcripts and immigration documents.

Auditing students

Auditing students are graduate students who, with the permission of the Graduate Program Director and/or Faculty Student Affairs Office of the program in which the course is offered, may attend a class that is not a requirement of the student's program. There is no credit value assigned when courses are audited and students are not required to complete assignments or write examinations. Refer to Tuition and Fees for detailed information on the financial implications.

Student classification: full/part-time status

Graduate Certificate and Diploma Programs

Students in a graduate certificate or diploma program are considered to be full-time students if they register for 9 or more credits in a term.

Students who do not fall in the situations described above are considered to be part-time students.

Master's and Doctoral Programs

Students in thesis-based master's or doctoral degree programs are accepted as full or part-time students at the time of admission. These students are considered to be full or part-time according to their status at admission, regardless of the actual amount of credits for which they register. Their classification will change only if they submit a request to change their status.

A student's status in course-based master's program is determined by the number of credits for which they are registered by the DNE deadline. In particular, students are considered full-time if they are enrolled in 9 credits per term in the Fall and Winter terms of a given academic year. Registration in less than 9 credits in the Summer or last term of study, does not impact full-time status. Students enrolled in less than 9 credits in a Fall or Winter term will automatically be classified as part-time for that term unless they are enrolled in an internship component or project course.

MBA students enrolled in the Executive MBA program and the Investment Management MBA program are considered full-time students as they have to follow an established schedule of courses per term.

Master of Business Administration (MBA) program students are considered full-time if they register for a minimum of 12 credits in each of the Fall and Winter terms. Part-time MBA students are permitted to register for a maximum of 6 credits in each of the Fall and Winter terms and a minimum of 12 credits in the academic year.

Independent Graduate and Visiting students are considered to be part-time students.

Visiting Exchange students are considered to be full-time students.

Service requests

Applications from full-time or part-time students for exceptions to academic regulations or related matters should be submitted by the student through the Service Request system.

To submit a Service Request, the student must access their Student Center, next click on "Graduate Service Request".

A statement from the student confirming support for the request submitted with relevant supporting documentation should be included with the request. A request is not deemed to be approved until authorized by the School of Graduate Studies.

Changes to student classification: full/part-time status

Students in thesis-based programs must submit a Service Request for a change in status. Requests for changes to student classification (from full-time to part-time or vice-versa) must be submitted prior to the DNE deadline of a given term. A change of student classification may have implications for students receiving loans, bursaries, or awards; students should check the regulations associated with their loans, bursaries, or awards. International students must retain the status as indicated on their Study Permit/CAQ.

Changes to a student's classification may also affect the student's time limit and/or their payment schedule.

Registration

Most programs currently offer web registration. In these programs, it is the student's responsibility to add, change or drop their courses on-line, by the deadlines indicated in the Academic Calendar.

Students in programs not offering web registration must contact the Graduate Program Director in order to add, drop or change their course(s).

All students are responsible to verify that their registration has been processed and that the course registration appears on their student record. Any errors or omissions must be addressed prior to the registration deadlines of the term in question.

Registration for a course(s)

It is the student's responsibility to ensure that course registrations have been processed and/or requested from their program by the deadline dates listed in the Academic Calendar.

If not officially registered in a course, students are not entitled to attend the course or to receive grades for any completed work. Refer to the Academic Calendar for a detailed list of deadline dates.

Late registration for a course(s)

If, due to extenuating circumstances, a student could not register by the registration deadline dates, they must submit a Service Request for late registration. In such cases, a student may attend classes until they receive a decision. Late registration is allowed only in special circumstances, with the approval of the Graduate Program Director and the School of Graduate Studies. Service requests for late registrations must be supported by appropriate documentation.

Students will incur a late registration fee when they register on, or after, the date that classes officially begin across the University.

Withdrawing from Course(s)

Withdrawing from a course leads to either a Did Not Enter (DNE) or a Discontinued (DISC) notation.

It is the student's responsibility to meet all deadlines and follow all necessary steps to withdraw from a course(s), or from the University. Not attending classes or informing an instructor of the intent to withdraw does not constitute official withdrawal. It is not mandatory for an instructor to provide students with any evaluation or feedback of their progress in a course before the withdrawal deadline. Students who do not properly withdraw before the published deadlines will receive failing grades.

Did Not Enter (DNE)

A DNE means that the student has officially withdrawn from the course. The DNE'd course(s) will be removed from the student's academic record, and will not appear on the record. Refer to Tuition and Fees for detailed information on the financial implications and the Academic Calendar for deadline dates. Non-standard DNE dates are available through the Graduate program office.

Discontinued (DISC)

A DISC is an academic withdrawal from a course. This means that the student is still registered in the course, but no longer has to attend classes or complete the course work. The student will not be academically penalized (i.e. receive a failed grade). A DISC notation is permanent and appears on the student transcript next to the relevant course. Failure to comply with the DISC withdrawal deadline results in the course(s) in question being graded *Fail*, *F*, or *Fail/Absent (F-ABS)*. Refer to F rule for academic standing. Non-standard DNE dates are available through the Graduate program office.

Withdrawal from program or from the University

Students who wish to withdraw from their program or from the University must do so by the DNE deadline and include the reason(s) for withdrawing. A Service Request for withdrawal from program must be completed and submitted. It is the student's responsibility to ensure that they have DNE'ed their courses by the deadline for the withdrawal to be effective for the beginning of term. If the withdrawal from program request is submitted after the DNE deadline, it will be effective the beginning of the following term. If the student does not wish to complete their course(s), it is their responsibility to ensure they have withdrawn from their courses by the DISC date. Failure to comply with the DISC withdrawal deadline results in the course(s) in question being graded *Fail*/*F*/*Fail/Absent* (*F-ABS*). The student's record will reflect "withdrew from program".

Refer to Tuition and Fees for detailed information on the financial implications.

Continuing In Program (CIP) registrations

(for students in thesis-based master's or doctoral programs)

After a student's first registration has been processed, the registration system will consider thesis-based master's and doctoral students to be continuing in their program when they are not otherwise registered in academic courses. Students who are still within their program time limit but are not registered in course credits, will be identified as "Continuing in Program" on their student record. This notation is an academic notation and not a registration for academic credit. Students with a CIP notation will be charged either tuition or a Continuation fee. Refer to the Tuition and Fees for detailed information on the financial implications.

Students in thesis-based programs who are not registered for courses in the first term of admission must get approval from the School of Graduate Studies for a CIP notation, through the submission of a Service Request.

The CIP notation cannot be applied to students in course-based master's programs.

The notation on the student record will show Continuing in Program (CIP) or Time Limit Extension (TLE), respectively, unless replaced by a course registration. The CIP is an automatic process. Should a student subsequently register for courses, the automatic CIP will be removed.

Automatic CIPs will occur for returning students only if there are no restrictions on record (e.g. academic, financial, expired time limits). Students will be withdrawn from their program if the automatic CIPs cannot be processed each term.

Time Limit Extension registrations

Students who have exceeded their time limit and have been granted a time limit extension will automatically be registered in “Time Limit Extension” (TLE) by the system until they have reached their program time limit extension. If a course is registered, the TLE notation is replaced with the course. Refer to Tuition and Fees for detailed information on the financial implications.

Withdrawal from program due to lack of registration

Graduate students in thesis-based master’s and doctoral programs will be withdrawn from their program if course registration or academic course notation (CIP/TLE) cannot be processed each term due to any outstanding admission, immigration documents, unpaid accounts, missing progress report, outstanding Academic Success Integrity Module, or poor academic standing.

Graduate students in Graduate Certificate, Diploma, or course-based master's programs will be withdrawn due to inactivity for three consecutive terms (see Lapsed Student Status), or once their time limit has expired.

Refer to the sections on Continuing in Program (CIP) Registrations as well as Re-Instatement of Withdrawn Students.

Lapsed student status

Students in diploma, certificate, and course-based master’s programs who have not registered for courses for three consecutive terms will be withdrawn from the program and must submit a Service Request for reinstatement to the program.

Independent graduate students and graduate visiting students who have not registered for courses for three consecutive terms or more will have their student status lapsed and must submit an authorization to register as a non-degree student.

Inter-university agreement (AEHE/BCI)

Québec universities have agreed to permit the transfer of academic credits between them using the AEHE/BCI Registration system. Using this system, Concordia students may take courses at another Québec University (the host university) and the credits will be transferred back to Concordia to be used to meet the requirements of their degree.

Up to a maximum of 6 credits may be transferred in any one year. In exceptional cases, a student may be authorized to take up to 12 credits at another university.

The host university has the right to accept or refuse a request for registration from a student in another university, in any of the courses or programs which it offers. Students are subject to the rules and regulations of the host university.

Eligible students

Only students enrolled in a degree program are eligible to register under the Inter-University Agreement. Authorization for a Concordia graduate student to register at another university must be given by the student’s Graduate Program Director, the Dean of Graduate Studies, and the Office of the Registrar. Only students in good academic standing will be approved to register under the Inter-University Agreement. In addition, in order for students to be approved, their admission file must be complete and finalized. Concordia students wishing to take a course at another university cannot have an outstanding account balance.

Eligible Courses

The agreement normally covers only graduate degree students and graduate-level courses, and is intended to include only those courses not given at the home university which fit a student’s program requirements. In exceptional cases, graduate students may be authorized to take undergraduate courses to meet the requirements of a concurrent qualifying program.

Transfer of Grades

The grades achieved at other institutions for courses taken under the Inter-University Agreement will be recorded on Concordia records and transcripts using a conversion table. These grades will be included in the calculation of grade point averages in the same manner as any grade achieved in a course taken at Concordia and subsequently transferred into the student’s program.

Payment of Courses

Payment for the courses is due at the student's home university. Refer to Tuition and Fees. Any additional costs (i.e. lab materials) are payable to the host university.

Registration/Cancellation of Courses

All requests for registration and/or cancellation of courses are done through the BCI website. Students are responsible for accessing the BCI website to check the status of their request on a regular basis. Requests go through several stages of processing and e-mails will not necessarily be sent to update the student on the status at each stage.

Deadlines

Requests for registration or cancellation of courses at other universities must be submitted by the deadline of the host university. Students are advised to inform themselves of the host university's deadlines, since they may be different from Concordia's.

Students should refer to the BCI website for detailed information.

Financial implications

Refer to Tuition and Fees for detailed information on the financial implications related to late registration, DNEs, DISCs Continuation fees or TLEs.

Student portal

Students can access information concerning their personal class schedule, current course grades, account balance, tuition and enrolment receipts for educational tax credit, loans and bursaries, personal book list, permanent code status and registration dates in the Student Hub. Students can also update their mailing address(es) and e-mail address(es) on the student portal; students are responsible for ensuring that the contact details listed are current.

Tuition and other fees are automatically assessed and charged to the student's account once a student has registered in a course(s) or has a Continuing in Program (CIP) or a Time Limit Extension (TLE) academic notation on their student record. The student's account balance is available in the Student Centre. Refer to Tuition and Fees for detailed information.

Within minimum residence

All master's and doctoral programs have a minimum residence requirement of at least three terms for master's degrees and six terms for doctoral degrees. This is the minimum period of time which must elapse between a student's initial registration in the program and the student's graduation. There is no minimum residence requirement for diploma and certificate programs.

Leaves of absence from program

Graduate students who wish to temporarily discontinue their studies for a few terms may request a leave of absence from their program through a Service Request. Before requesting a leave, students should confirm with their Graduate Program Director and supervisor that all required components of their degree programs will be available when they return. The beginning and end of a leave should coincide with the beginning and end of an academic term.

Leaves are granted only to students in good academic standing. Refer to the relevant Academic Regulations section.

Students cannot be on Leave in terms where a course with a DISC notation appears since a discontinued course is still considered as a registration. Refer to the Withdrawal from a course or courses section.

No changes to the student's academic status will be made during a leave.

Students may not graduate with a Leave of Absence in their graduating term.

Time Limit & Other Deadlines

While on Leave without access, Leave with access or Parental Leave, the student' program time limit will be extended by the period of the leave. All deadlines for work in progress will be extended by the period of the leave.

Access to University Services

During a leave of absence (of any type), students are not entitled to take courses, write exams, submit outstanding work and/or request

guidance on thesis and research work. However, they may have access to some university services depending on the type of leave they request. There are three types of leaves available to students and one administrative leave:

Types of Leaves & Fees

Leave without access: During a leave without access, a student will not have access to library, university or student services. No fees will be charged.

Leave with access: During a leave with access, a student will have access to library, university and student services. Leaves with access are granted only under exceptional circumstances. A flat service fee of $150 per term will be charged.

Parental leave: All graduate students are entitled to parental leave of up to three consecutive terms during their program of study on the occasion of the birth or adoption of a child. The student will have access to library, university and student services. Students holding a Concordia Fellowship will receive a deferral of their fellowship for the period of leave. In the case of other fellowships, the regulations of the granting agencies will apply. No fees will be charged.

Required Administrative Leave: Students who are removed from studies resulting from expired Study Permits/CAQs, a delay in requesting reinstatement into the university or other administrative issues will be assigned a required administrative leave of absence from their program. A student will not have access to library, university or student services. No fees are charged. A Required Administrative Leave will not extend a student's program Time Limit.

Except for Parental leave, students are normally permitted only a maximum of three terms of leave (with or without access) during their program of study. Leaves beyond three terms are only approved on an exceptional basis and with supporting documentation. Parental leave can be requested on the occasion of each birth or adoption of a child.

Awards, Loans, Bursaries

A leave from a program of study may have implications for students receiving awards, loans or bursaries; students should check the regulations associated with their awards, loans or bursaries.

Medical Coverage

- While on an approved leave of absence Canadian students do not pay fees for the Student Health and Dental Plan. Therefore, they are not covered by (insured under) this insurance plan.
- International student's medical coverage is dependent on their registration status and therefore medical coverage may be cancelled. Please visit the International Students Office for information regarding Health Insurance eligibility. In addition, since the visa status of international students may possibly be affected by a leave of absence, it is very important that these students visit the International Students Office for additional information.

Applying For a Leave

With the exception of the Required Administrative Leave, students apply in advance through the Student Request process, prior to the DNE deadline. Students must see the Graduate Program Director in their program in order to initiate a Student Request. Students must specify the reason for the Leave and provide supporting documentation; for example, a request for leave for medical reasons must be supported by an original medical certificate.

End of a Leave

Once a student's leave is over, the student will be considered as continuing in their program. Students in thesis-based master's and doctoral programs will receive a Continuation in Program notation on their record if they do not take any courses in the term in which they return from leave. A student returning from leave will be charged tuition and fees accordingly.

Graduate Certificate, Diploma, and course-based master's students will only be charged once they register for courses.

Exemptions

Depending on the policy of the degree program, students may be granted an exemption from a required course in their program curriculum. Students who are granted an exemption must replace the exempted course with another course in order to fulfill the credit requirements of the program. This replacement course must be selected in conjunction with their Graduate Program Director.

Students who have been granted an exemption for a course cannot subsequently take that course for credit toward the graduate certificate, diploma or degree.

Transfer credits

Students may transfer credits from previous studies completed within the past five years to their current program. The credits must have been earned for graduate-level studies, and they must not have been used as part of a completed Master or Doctoraldegree**.**

Credits earned from a completed graduate Certificate or Diploma may be eligible for transfer. Students should contact their department for eligibility prior to submitting a Service Request.

Requests to transfer credits must be approved by the students' degree program and the Dean of Graduate Studies. Transfer credits must normally be requested in the student's first term of admission. Students are encouraged to read their program's calendar section for further information.

As part of a service request to transfer credit, students must provide official transcripts showing that they have completed the course. The grade and number of credits they received for the course must appear on the transcript. The transcripts must be accompanied by official course descriptions for the relevant courses. In addition, the transcripts must show that the students have withdrawn from the Master or Doctoralprogram from which the requested credits are being transferred.

Transfer credits to programs requiring a graduation GPA of 3.00 will be permitted only if the final grade for the course is *B* or better. Transfer credits to programs requiring a graduation GPA of 2.70 will be permitted only if the final grade for the course is *B*- or better.

The grades associated with transfer credits do not appear on the students' transcript and therefore will not affect their Grade Point Average. The two exceptions to this rule are credits transferred from previous studies at Concordia University and credits for courses taken under the Inter-University Agreement (AEHE/BCI).

Courses taken previously at Concordia and courses taken under the Inter-University Agreement will appear on Concordia records and transcripts, under the new program, along with the grades associated with the courses. The transferred grades and credits will be included in the calculation of students' grade point averages.

The grades for INTU courses will be recorded using a conversion table that can be accessed at the Registrar's website.

Re-instatement of withdrawn students

Students who have been withdrawn from a graduate program by the University for non-academic reasons (e.g. non-continuous registration) may wish to submit a Student Request for reinstatement to the program. Students must see the Graduate Program Director in their program in order to initiate a Student Request. This request is to be submitted for consideration during the same term in which the student was withdrawn.

Students who withdrew from their program for non-academic reasons, and who are still in good academic standing according to the regulations of the university may request to be reinstated into their program. The request for reinstatement must be for an academic term no later than one year (3 academic terms) after the term of withdrawal.

Institute for Co-operative Education

Graduate Co-op Program

The Graduate Co-op Program is a structured internship program offered through the Institute for Co-operative Education. The program supports work-integrated learning through relevant work experiences that allow students to combine theory and practice, and to transfer knowledge and skills between work and classroom settings. It is an opportunity for students to broaden their perspective, strengthen their skills and better prepare for the job market.

When enrolled in a Graduate Co-op Program, the student must complete an internship successfully to receive a degree with a Co-op designation. Graduate students registered in the Faculty of Arts and Science, the Faculty of Fine Arts, the Gina Cody School of Engineering and Computer Science and the John Molson School of Business are eligible to apply to their department's Co-op Program.

Work-Integrated Learning (WIL) Internship Courses

When participating in an internship offered through the Institute for Co-operative Education, the Institute will enroll students in an internship course to indicate that the student is on an internship. These internship courses carry no credit value, but do indicate that the student maintains full-time status while enrolled in the course. Internships are typically 420 hours in length, over the course of one term. The courses are graded as Pass/Fail.

Work-Integrated Learning (WIL) Reflective Learning Courses

A core feature of work-integrated learning is integration between the work experience and academic experience. The Institute enrolls students in a Reflective Learning course while they are on their internship. The course carries 3 complementary credits, and as such is above and beyond the credit requirements for the student's program. These courses are graded as Pass/Fail.

Please see Institute for Co-operative Education Courses for more information.

International program

Concordia International is the gateway to most international activities at Concordia University. Operating under the Associate Vice-President International, CI is one of the four constituent units of the Office of the Vice-President Research and Graduate Studies. The Office supports Concordia University's internationalisation policy through a variety of programs and projects for students and faculty both on campus and abroad. Each year, many Concordia students, faculty and staff participate in a variety of international activities such as study abroad programs, collaborative curriculum development and joint research projects. These initiatives are reflective of an increasingly global academic world and are of great assistance in helping Concordia's reputation grow beyond its borders.

International students

- International Students Office
- Tuition and fees information
- Exemptions from Differential Fees
- Graduate fellowships and awards

Policies and procedures

- Policy on Graduate Academic Appeals
- Academic Integrity and the Academic Code of Conduct
 - Research Ethics
 - Guidelines for Researchers Regarding the Ethics Review of Research Involving Humans
 - Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS)
 - Canadian Council on Animal Care (CCAC)
- Policy on Academic Re-evaluation
- Code of Rights and Responsibilities
- Controlled Goods Policy
- Financial Information
- Governance
 - BOG membership
 - BOG Committees
 - Senate membership
 - Standing committees of Senate
 - Council of the School of Graduate Studies (CSGS)
- Terms of Reference of the Ombuds Office
- Policy on the establishment of Tribunal Hearing Pools

Postdoctoral Fellows

- Postdoctoral Fellows
- GradProSkills
- Research at Concordia

Student services

- Dean of Students Office
 - Concordia LIVE Centre
 - Concordia Student Parents Centre (CUSP)
 - Child Care Services
 - Multi-faith and Spirituality Centre
 - International Students Office
 - Aboriginal Student Resource Centre
 - Sexual Assault Resource Centre
- Access Centre for Students with Disabilities (ACSD)
- Academic Integrity
- Counselling and Psychological Services
- Student Success Centre
 - Learning Support
 - Career and Planning Services
 - Services for New Students
 - Orientation
 - Mentoring
 - Student Advocacy Office
- Financial Aid and Awards Office
- Work-Study Program
- Health Services
- The Applied Psychology Centre
- Graduate Student Association (GSA)
- Off-campus housing
- Ombuds Office
- Recreation and Athletics

Thesis regulations

Thesis

A thesis is the final report on a comprehensive research program that meets accepted scholarly criteria and is of a cohesive, unitary character. All written components of a thesis must meet the scholarly requirements of the research discipline and be formatted in accordance with the Thesis Preparation Guide.

If it is necessary to include non-text materials in a thesis, the content must conform to standard usage in the student's field of research, and be in a format that allows for submission via Spectrum: Concordia University's Research Repository.

The student's supervisor shall fully inform the student of any and all contractual obligation(s), as they may pertain to the student, which may affect the public defence and/or publication of his/her thesis.

Thesis submission

In order to meet a particular graduation date, a student must submit his/her thesis to the Thesis Office at any time before the specified deadline set out in the Academic Calendar. It should be noted that some programs have established deadlines earlier than those of the Thesis Office. The initial submission of the thesis to the Thesis Office begins the official examination process.

A thesis submitted to the Thesis Office must be ready for formal evaluation according to requirements set out in the Thesis Preparation Guide. Any deviations from the stated requirements must have prior written approval of the Dean of Graduate Studies.

The student's supervisor shall review the thesis before the initial formal submission to the Thesis Office. In the event that the student and supervisor cannot reach an agreement on the readiness of the thesis for submission, the Graduate Program Director and the Dean of Graduate Studies may be required to arbitrate. Although it is not recommended, the student has the right to defend his/her thesis without the supervisor's approval.

Thesis not written in English

At Concordia, theses are normally written in English. However, a student who intends to submit their thesis in French must inform their supervisor when submitting the thesis topic for the supervisor's approval. In the event that a student wishes to submit his/her thesis in a language other than English or French, where the program does not have prior approval, the thesis supervisor must make such a recommendation, with an appropriate justification, to the Graduate Studies Committee when the student's thesis topic is submitted for approval. The decision of the Departmental Graduate Studies Committee on such a recommendation shall be communicated to the Thesis Office. Students in the MA Hispanic Studies program may write their thesis in Spanish.

A thesis written in a language other than English or French must include a comprehensive summary of its contents. This comprehensive summary/description must be written in English or French and appear after the abstract. The summary must be between 3-6 pages for master's and 10-20 pages for doctoral as appropriate. Students in the MA Hispanic Studies program may write their thesis in Spanish and must also include a summary in English or French.

Joint programs

The PhD programs in Business Administration, Art History, and Religion must adhere to the thesis requirements and guidelines at Concordia.

According to the signed agreement(s) as detailed in the Thesis Preparation Guide, students in the co-tutelle and Algant programs must satisfy the thesis requirements/guidelines of both universities.

Examination of thesis

Doctoral thesis

The doctoral thesis examination is the culmination of the student's program. It exposes his/her research and thesis to scholarly criticism and gives the student the opportunity to defend it. The thesis defence is an oral examination conducted by the Chair of the Examining Committee who shall be the Dean of Graduate Studies or his/her delegate. Any member of the University can attend a doctoral defence. Contractual and/or legal obligations may necessitate that all participants to a thesis defence sign an undertaking of confidentiality.

The Examining Committee consists of at least five (5) members. At least one (1) must be from outside the University (external examiner). An external examiner for a doctoral defence must be a scholar with demonstrated expertise and an international reputation related to the field of

research on which the thesis reports. Furthermore the examiner must have experience mentoring PhD students and ideally will have graduated their own PhD students. University faculty members outside of Concordia University are typically eligible to serve as external examiners. The student's thesis supervisor(s) should have had no demonstrated collaboration (joint research, grants or publications) with the suggested external examiner for at least six years. Under highly exceptional circumstances, external examiner candidates not meeting any of the above criteria will be considered by the School of Graduate Studies (SGS); in such cases the graduate program must make a written request to the Thesis Office with an accompanying justification. SGS reserves the right to reject external examiners not meeting the above criteria. In all cases the external examiner must not be in Conflict of Interest. The remaining members must be internal to the University or otherwise have a formal academic connection to the student's graduate program. In programs where there is a Thesis Supervisory Committee, any or all members of this committee may be named as members of the Examining Committee, subject to the practices of the relevant program. The student's supervisor(s) must be a member of the Examining Committee. Co-author(s) of work included in the thesis cannot serve as an examiner for that thesis except for the supervisor(s).

The student's program is responsible for ensuring that the proposed date of the thesis defence is agreeable to all members of the Examining Committee prior to submitting the Doctoral Thesis Examination Committee Form. An electronic copy of the thesis and the approved Doctoral Thesis Examination Committee Form must be submitted to the Thesis Office no later than six (6) weeks prior to the date of the defence. An electronic copy of the thesis remains with the School of Graduate Studies, where it is made available for examination by any member of the University. Contractual and/or legal obligations may necessitate that all participants to a thesis defence sign an undertaking of confidentiality.

Questions on a thesis by members of the University, other than those on the Examining Committee, must be submitted in writing to the Dean of Graduate Studies no later than seven (7) days prior to the date of the thesis defence.

The relevant Graduate Studies Committee renders a decision on whether the student has fulfilled the requirements of the doctoral degree based on the Examining Committee Report and its own records of the student's progress in his/her assigned program of study. Where the relevant Graduate Studies Committee has assessed that the student has fulfilled the requirements of the doctoral degree, it shall request that the Dean of Graduate Studies recommends to the Council of the School of Graduate Studies that the doctoral degree be awarded. The Council of the School of Graduate Studies shall make a recommendation to Senate for the awarding of the doctoral degree. Once such a recommendation has been passed by Senate, the electronic version of the thesis may be made available to the public via Spectrum: Concordia University's Research Repository.

At any time, the Dean of Graduate Studies may bring before the Council of the School of Graduate Studies any matter that may affect the acceptance of the thesis or the award of the doctoral degree.

Procedures related to presentation, question period and deliberations of the defence can be found in the Thesis Preparation Guide.

Master's thesis

The Graduate Studies Committee of the student's program, in consultation with his/her supervisor, appoints an Examining Committee. The Examining Committee consists of a minimum of two (2) members, including the supervisor(s). The student's supervisor(s) must be a member of the Examining Committee. The Examining Committee must also include a member who is not in a supervisory relationship with the student. Co-author(s) of work included in the thesis cannot serve as an examiner for that thesis except for the supervisor(s). Following evaluation of the thesis, the Examining Committee will arrive at a decision to either Accept or Reject. When an Examining Committee composed of two faculty members renders a split decision, the Graduate Program Director (or Departmental Chair when appropriate) will adjudicate. Once the Examining Committee has arrived at a final decision, it is the responsibility of the Graduate Program to forward to the Thesis Office, generally within 3 weeks from the initial submission of the thesis, a completed Master's Thesis Evaluation Report that reflects the final decision of the Examining Committee.

An oral defence of a Master's thesis is not required by the School of Graduate Studies. Programs may elect to have an oral defence as a degree requirement (please see individual program entries in the Calendar).

Decision (PhD defences)

The decision of the Examining Committee is based both on the thesis and on the student's ability to defend it. At the PhD defence, an Oral Presentation Form must be completed and signed by the Chair. It is the responsibility of the Chair of the Examining Committee to ensure that an Examining Committee Report is prepared and signed by all members of the Examining Committee before this Committee adjourns. The Examining Committee Report must include the written reports of absent and dissenting Examining Committee members. It is the responsibility of the Chair of the Examining Committee to report to the Dean of Graduate Studies on the conduct of the examination.

The Examining Committee can render one (1) of four (4) decisions, subject to a vote of majority. Members of the examining committee may not abstain from voting. The thesis can be:

1. accepted as submitted which may include editorial or formatting corrections;
2. accepted with minor modifications defined as corrections which can be made immediately and to the satisfaction of the supervisor;
3. accepted with major modifications: the Examining Committee Report shall include a precise description of the modifications along with a date for their completion of no more than six months. The Examining Committee shall examine the modified thesis and by majority vote determine if the modifications specified in the Examining Committee Report have been completed to the Examining Committee's satisfaction. If they have, the thesis may be accepted and the supervisor will confirm the Examining Committee's approval to the Thesis Office. It is not necessary for the Examining Committee to reconvene. If the Examining Committee is not satisfied that the specified modifications have been made, then the Examining Committee must reconvene to decide if the thesis is rejected or an additional period of modifications is to be granted. The Chair shall report in writing to the Dean of Graduate Studies the outcome of the Examining Committee meeting; or
4. rejected: such a thesis may be re-submitted only once, in revised form; such a re-submission can only be made six (6) months or more from the date of the Examining Committee report. Formal re-submission of a thesis follows the same procedure as an initial submission.

If the Examining Committee is unable to reach a decision concerning the thesis at the time of the defence, it is the responsibility of its Chair to determine what is required by the Examining Committee to reach a decision; make the necessary arrangements to fulfill any requirements of the Examining Committee; and promptly call another meeting and inform the student that the Examining Committee's decision is pending. The student is not normally required to be present at the second meeting of the Examining Committee.

Final submission of thesis

The primary goal of Concordia University is the dissemination of knowledge. To achieve this goal, the university makes all theses available to the general public via Spectrum, the Library Repository. Spectrum is a widely indexed, searchable database and its contents are readily available to the public via the internet.

A student must submit the final version of the thesis electronically, using Spectrum. The final version of the thesis must include any required modifications requested by the Examining Committee and any revisions requested by the Thesis Office. The student is responsible for the final electronic submission of his/her thesis.

Upon final submission of his/her thesis, a student shall be deemed to have granted the University a non-exclusive, royalty-free license to reproduce, archive, preserve, conserve, communicate to the public by telecommunication or on the internet, loan, and distribute the thesis worldwide for non-commercial purposes, in any format. Please refer to the University's Policy on Intellectual Property.

Deferment

If there is a good reason for delaying public access to a thesis, an approved embargo may be placed on the publication of the thesis. The deferment is for up to two (2) years but under exceptional circumstances may be renewed. The abstract and bibliographic information is not embargoed and is therefore still available to the public. In the event of a deferment, it is understood that the University's license to communicate, loan and/or distribute shall only take effect as of the expiry of the deferment period. Please refer to the University's Policy on Intellectual Property.

Copyright regulations

Members of the Concordia community are users of copyrighted materials and, as such, are subject to copyright legislation. Compliance with the Copyright Act and the University's Policy on Copyright Compliance is a student's responsibility. Failure to comply with the Copyright Act is a violation of federal legislation and may result in legal repercussions and/or disciplinary or other action by the University. Beyond any legal responsibility, a student must consider his/her ethical obligations to respect intellectual property rights.

Program repertoire

Concordia University's graduate programs encompass doctoral and master's degrees, diploma and certificate programs, as well as micro-programs.

The goal of **doctoral studies** is an original and significant contribution to knowledge through research and/or research creation. Doctoral programs require a minimum of 90 credits of study, including the successful completion of comprehensive examinations and the public defence of a thesis.

At the **master's level**, the University offers a variety of research- and professionally-oriented degree programs of study, all of which require a minimum of 45 credits. This includes the earning of a master's degree by 'accumulation' by combining diploma, certificate, and micro-program courses and credits to meet the 45-credit minimum required for a master's degree.

The academic goals of the **graduate diploma** include advanced specialization in a field or discipline already studied at the undergraduate level, or the introduction to a new field of study or discipline leading toward the attainment of specialized knowledge. A graduate diploma consists of a minimum of 30 credits.

Graduate certificate programs are normally oriented towards working professionals seeking to upgrade and advance their skills and training in an abbreviated time-frame. Graduate certificate programs are normally completed in one to three years and consist of 15 credits.

Micro-programs are an organized group of courses and/or experiences between one and 14 credits that allow students to develop and document professional skills and competencies. These short courses of study verify, validate and attest that students have acquired specific skills and/or competencies.

Arts and Science Programs

Applied Human Sciences Programs

- **Master/Magisteriate**
 - Human Systems Intervention MA
- **Graduate Diploma**
 - Youth Work Graduate Diploma

Biology Programs

- **Doctor/Doctorate**
 - Biology PhD
- **Master/Magisteriate**
 - Biology MSc
- **Graduate Diploma**
 - Biotechnology and Genomics Graduate Diploma

Chemistry and Biochemistry Programs

- **Doctor/Doctorate**
 - Chemistry PhD
- **Master/Magisteriate**
 - Chemistry MSc

Classics, Modern Languages and Linguistics Programs

- **Master/Magisteriate**
 - Hispanic Studies MA

Communication Studies Programs

- **Doctor/Doctorate**
 - Communication PhD
- **Master/Magisteriate**
 - Media Studies MA
- **Graduate Diploma**
 - Communication Studies Graduate Diploma

Economics Programs

- **Doctor/Doctorate**
 - Economics PhD
- **Master/Magisteriate**
 - Economics MA
- **Graduate Diploma**

- Economics Graduate Diploma

Education Programs

- **Doctor/Doctorate**
 - Education PhD
- **Master/Magisteriate**
 - Applied Linguistics MA
 - Child Studies MA
 - Educational Studies MA
 - Educational Technology MA
- **Graduate Diploma**
 - Adult Education Graduate Diploma
 - Instructional Technology Graduate Diploma
- **Graduate Certificate**
 - Teaching of Higher and Continuing Education (C-TEACH) Graduate Certificate

English Programs

- **Doctor/Doctorate**
 - English Literature PhD
- **Master/Magisteriate**
 - English MA

Études françaises, programmes

- **Master/Magisteriate**
 - Littératures de langue française MA
 - Traductologie MA
- **Graduate Diploma**
 - Traduction, diplôme
- **Graduate Certificate**
 - Microprogramme en didactique et linguistique pour l'enseignement du français langue seconde
 - Technologies de la traduction, certificat

Geography, Planning and Environment Programs

- **Doctor/Doctorate**
 - Geography, Urban and Environmental Studies PhD
- **Master/Magisteriate**
 - Environmental Assessment MEnv
 - Geography, Urban and Environmental Studies MSc

- **Graduate Diploma**
 - Environmental Assessment Graduate Diploma

Health, Kinesiology, and Applied Physiology Programs

- **Doctor/Doctorate**
 - Health, Kinesiology, and Applied Physiology PhD
- **Master/Magisteriate**
 - Health, Kinesiology, and Applied Physiology MSc

History Programs

- **Doctor/Doctorate**
 - History PhD
- **Master/Magisteriate**
 - History MA

Interdisciplinary Humanities Program

- **Doctor/Doctorate**
 - Humanities PhD

Journalism Programs

- **Master/Magisteriate**
 - Digital Innovation in Journalism Studies MA
- Graduate Diploma
 - Journalism Graduate Diploma
 - Visual Journalism Graduate Diploma

Mathematics and Statistics Programs

- **Doctor/Doctorate**
 - Mathematics and Statistics PhD
- **Master/Magisteriate**
 - Mathematics and Statistics MA/MSc
 - Teaching of Mathematics MTM

Philosophy Programs

- **Master/Magisteriate**
 - Philosophy MA

Physics Programs

- **Doctor/Doctorate**
 - Physics PhD
- **Master/Magisteriate**

- Physics MSc

Political Science Programs

- **Doctor/Doctorate**
 - Political Science PhD
- **Master/Magisteriate**
 - Political Science MA
 - Public Policy and Public Administration (MPPPA) MA

Psychology Programs

- **Doctor/Doctorate**
 - Psychology PhD
- **Master/Magisteriate**
 - Psychology MA
- **Graduate Diploma**
 - Clinical Psychology Graduate Diploma

Religions and Cultures Programs

- **Doctor/Doctorate**
 - Religion PhD
- **Master/Magisteriate**
 - Judaic Studies MA
 - Religions and Cultures MA
 - Religions and Cultures Course Groups (MA)

School of Community and Public Affairs Programs

- **Graduate Diploma**
 - Community Economic Development (CED) Graduate Diploma
 - Développement économique communautaire (DEC), diplôme

Sociology and Anthropology Programs

- **Doctor/Doctorate**
 - Social and Cultural Analysis PhD
- **Master/Magisteriate**
 - Social and Cultural Anthropology MA
 - Sociology MA

Theological Studies Programs

- **Master/Magisteriate**
 - Theological Studies MA

Human Systems Intervention MA

Admission Requirements

- Minimum two years of full-time work experience.
- Bachelor's degree with a minimum B average or a cumulative grade point average of at least 3.00.
- A clearly delineated career intention concerning the development of intervention expertise for a particular domain of professional practice.
- Capacity to undertake all core courses of the first year in the scheduled sequence of the program.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

The Graduate Program Director may require a demonstration of English language competencies for international students or students educated abroad.

Preference will be shown toward applicants who have work experience that is directly related to their learning goals in the program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Applied Human Sciences Courses page for course descriptions.

Human Systems Intervention MA (45 credits)

27	credits of Required Courses: • AHSC 610 Group Process Intervention (3.00) • AHSC 620 Learning and Individual Change Processes (3.00) • AHSC 631 Research Methods (3.00) • AHSC 632 Planning Human Systems Intervention (3.00) • AHSC 660 Philosophy and Ethics of Intervention (3.00) • AHSC 670 Consultation Methods (3.00) • AHSC 680 Facilitating Individual and Group Learning Processes (6.00) • AHSC 685 Coaching Interventions and Processes (3.00)
15	credits: • AHSC 698 Master's Project (15.00)
3	credits of Elective Courses chosen from: • AHSC 675 Introduction to Open Systems Theory (3.00) • AHSC 681 Special Topics (3.00) • AHSC 682 Special Topics (6.00) • AHSC 695 Independent Study I (3.00) • AHSC 696 Independent Study II (3.00)

Additional Degree Requirements

Credits. Forty-two credits will be in required coursework, including 15 credits of project work. The remaining 3 credits are to be completed within or outside the department. Courses that are taken to complete entrance requirements to the program may not be counted toward the program's 45 credits. In exceptional cases, students who produce evidence of successful performance (B grade or better) in compatible

coursework at other institutions may be permitted transfer credit. A maximum of 9 credits in transfer courses will be permitted.

Coursework. The program is divided into two sections of coursework, with Year I establishing the prerequisites for Year II. In addition, students will have a minimum of 3 credits of elective coursework to complete their degree requirements.

Year I provides students with fundamental understanding and frames of reference regarding learning and change processes of persons and groups, steps in the intervention process, ethical principles, and research methods. These fundamental understandings are then deepened through application in practice-based courses of Year II. The Master's Project is intended to promote an integration of concepts and practical experience.

Year I constitutes the first phase of the program. Year II and the Elective Coursework is more individually-tailored, and constitutes the second and subsequent years, when necessary.

YEAR I. 18 required credits.

YEAR II. 24 required credits.

Elective Coursework. Required credits from Years I and II comprise 42 of the 45 credits in this MA program. Students must complete an additional 3 credits of coursework to satisfy degree requirements. These three credits of coursework may be taken in Year I or Year II.

Course substitution. Students may be exempted from certain courses on the basis of course work completed prior to entry into the program. A maximum of 9 credits of transfer credits will be permitted. These credits will be counted toward the required 45 credits in the program.

Residential Laboratories. Students will be required to participate in two week-long residential laboratories for which expenses for accommodation, meals and program related fees will be the responsibility of the students.

Academic Regulations

1. **Course Load for Full-Time Students.** The normal course load for full-time students will be a minimum of 18 credits per year. A student may not register for more than 27 credits per year without permission from the AHSC Graduate Program Director.
2. **Course Load for Part-Time Students.** Students will only be admitted to the program on a full-time status for the first year. With explicit permission of the AHSC Graduate Committee, a student may continue on a part-time basis following the first year of study. Part-time status is defined as enrolling in less than 8 credits per semester.
3. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
4. **Program Specific Requirements.** A minimum grade of B is required in each course.
5. **Residence.** The minimum residence is one year (3 terms) of full-time study.
6. **Time Limit.** Please refer to Academic Regulations page for further details regarding Time Limits.
7. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Youth Work Graduate Diploma

Admission Requirements

- Bachelor's degree with a minimum GPA of 3.00.
- Prerequisites at the undergraduate level include at least three credits in adolescent development and three credits in social science research methods.
- Evidence of some volunteer or work experience with children or youth is required.
- Candidates must be aware that a Police Check is required prior to an internship placement.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Additional requirements include two letters of recommendation, and both a letter of intent and interview.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 33 credits.

Please see the Applied Human Sciences Courses page for course descriptions.

Youth Work Graduate Diploma (33 credits)

24 credits of Required Courses:
- AHSC 510 Advanced Research Methods in Youth Work (3.00)
- AHSC 520 Psychoeducation and Youth Work Ethics in Practice (3.00)
- AHSC 522 Fundamentals of Child and Youth Care Work (3.00)
- AHSC 525 Individual and Group Intervention with Youth (3.00)
- AHSC 527 Advanced Youth Work Intervention: Case Management and Supervision (3.00)
- AHSC 530 Community Youth Development (3.00)
- AHSC 540 Mental Health and Addictions: Youth Work Perspectives, Policies and Practices (3.00)
- AHSC 565 Parent-Child Relations (3.00)

9 credits chosen from Youth Work Graduate Diploma Electives or Youth Work Graduate Diploma Required Fieldwork courses.

Youth Work Graduate Diploma Electives (12 credits)

In cases where cross-listed courses at the undergraduate level have already been completed, the candidate is required to select electives from the courses listed below to fulfill the 33-credit requirement. All substitutions must be made in consultation with the program advisor.

- AHSC 512 Sexuality in Human Relations (3.00)
- AHSC 513 Family Communication (3.00)
- AHSC 551 Counselling Skills and Concepts (6.00)
- AHSC 560 Health Promotion (6.00)
- AHSC 598 Special Topics in Youth Work (3.00)
- AHSC 599 Independent Study (3.00)

Youth Work Graduate Diploma Required Fieldwork

9	credits chosen from one of the following: Internship in Youth Work I and II Extended Internship

Internship in Youth Work I and II

- AHSC 533 Internship I in Youth Work (3.00)
- AHSC 537 Internship II in Youth Work (6.00)

Extended Internship

- AHSC 538 Extended Internship in Youth Work (9.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Biology PhD

Admission Requirements

- MSc degree in life sciences.
- At least a B average overall during the applicant's undergraduate and graduate studies.
- A thesis supervisor chosen by mutual agreement among the student, the Graduate Studies Committee and the potential supervisor.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Students will be assessed on the basis of undergraduate and graduate grades, letters of reference and research ability.

Students with a Master's degree from a foreign university will normally not be directly admitted into the PhD program, but will be accepted into the MSc in Biology program. They will, however, on demonstration of the ability to complete a PhD, be eligible to transfer to a PhD as described below.

Students registered in the MSc in Science in Biology who demonstrate exceptional potential for independent research and have attained an A- average in graduate courses in the program may request to transfer to the PhD program during the first six months of the second year of enrolment. The transfer must be approved by the student's supervisory committee and the departmental Graduate Studies Committee.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Biology Courses page for course descriptions.

Biology PhD (90 credits)

3	credits chosen from the following courses, or from any of the Biology PhD Advanced Topics or Reading Courses. Other courses in the list may be chosen upon recommendation of the supervisory committee and the Graduate Program Director: • BIOL 616 Current Advances in Ecological Research (3.00) • BIOL 670 Scientific Communication (3.00) • BIOL 671 Scanning Electron Microscopy (3.00)
6	credits: • BIOL 801 Pedagogical training (3.00) • BIOL 802 Research seminar (3.00)
81	credits: • BIOL 850 Research proposal and qualifying exam (6.00) • BIOL 890 Research and Thesis (75.00)

Biology PhD Advanced Topics or Reading Courses

- BIOL 601 Readings in Ecology and Behaviour I (3.00)
- BIOL 602 Readings in Cell and Molecular Biology I (3.00)
- BIOL 606 Readings in Organismal Biology I (3.00)
- BIOL 607 Readings in Ecology and Behaviour II (3.00)
- BIOL 608 Readings in Cell and Molecular Biology II (3.00)
- BIOL 609 Readings in Organismal Biology II (3.00)

- BIOL 612 Advanced Topics in Evolution (3.00)
- BIOL 613 Advanced Topics in Behavioural Ecology (3.00)
- BIOL 614 Advanced Topics in Ecology (3.00)
- BIOL 615 Advanced Topics in Animal Biology (3.00)
- BIOL 630 Advanced Topics in Bioinformatics (3.00)
- BIOL 631 Advanced Topics in Biotechnology (3.00)
- BIOL 632 Advanced Topics in Cell Biology (3.00)
- BIOL 635 Advanced Topics in Molecular Genetics (3.00)
- BIOL 640 Advanced Topics in Plant Biology (3.00)
- BIOL 680 Advanced Topics in Biology (3.00)
- BIOL 685 Advanced Topics in Microbiology (3.00)
- CHEM 670 Selected Topics in Biochemistry and Biophysics (3.00)
- CHEM 677 Enzyme Kinetics and Mechanism (3.00)
- CHEM 678 Protein Engineering and Design (3.00)

Additional Degree Requirements

Students transferring from the MSc program will be required to complete 90 credits in addition to the course requirements for the Master's program (9 credits). Students may be required to take up to 12 credits, at the graduate or advanced undergraduate level, in addition to the above. These courses may be required to strengthen understanding of peripheral areas or of the student's area of specialization. The additional course work may be assigned as an admission requirement or following BIOL 850 - Research proposal and qualifying exam.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Program Specific Requirements.** Students must obtain an assessment grade point average (AGPA) of 3.00 based on a minimum of 6 credits.
3. **Residence.** The minimum residence requirement is two years (6 terms) of full-time study beyond the master’s degree, or three years (9 terms) of full-time study beyond the bachelor’s degree.
4. **Time Limit.** Please refer to the Academic Regulations page for further details regarding Time Limits. All work for the doctoral degree must be completed by the end of the fourth calendar year following the year of admission to candidacy, defined as successful completion of the Research Proposal and Qualifying Exam (BIOL 850).
5. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of 3.00.

Biology MSc

Admission Requirements

- BSc degree or equivalent with specialization in biology with good standing (B average) from a recognized university.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Exceptionally, applicants not meeting the GPA requirement may be admitted on the basis of outstanding academic letters of reference, good performance and high standing in advanced courses or exceptional research experience.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Biology Courses page for course descriptions.

Biology MSc (45 credits)

9 credits chosen from the following courses, or from the Biochemistry Courses list, in consultation with the candidate's advisory committee:
- BIOL 601 Readings in Ecology and Behaviour I (3.00)
- BIOL 602 Readings in Cell and Molecular Biology I (3.00)
- BIOL 606 Readings in Organismal Biology I (3.00)
- BIOL 607 Readings in Ecology and Behaviour II (3.00)
- BIOL 608 Readings in Cell and Molecular Biology II (3.00)
- BIOL 609 Readings in Organismal Biology II (3.00)
- BIOL 612 Advanced Topics in Evolution (3.00)
- BIOL 613 Advanced Topics in Behavioural Ecology (3.00)
- BIOL 614 Advanced Topics in Ecology (3.00)
- BIOL 615 Advanced Topics in Animal Biology (3.00)
- BIOL 630 Advanced Topics in Bioinformatics (3.00)
- BIOL 631 Advanced Topics in Biotechnology (3.00)
- BIOL 632 Advanced Topics in Cell Biology (3.00)
- BIOL 635 Advanced Topics in Molecular Genetics (3.00)
- BIOL 640 Advanced Topics in Plant Biology (3.00)
- BIOL 680 Advanced Topics in Biology (3.00)
- BIOL 685 Advanced Topics in Microbiology (3.00)

36 credits:
- BIOL 696 Master's Research and Thesis (36.00)

Biochemistry Courses

The following courses in Biochemistry may be taken for credit in the program:
- CHEM 670 Selected Topics in Biochemistry and Biophysics (3.00)
- BIOL 622 Advanced Techniques in Ecology (3.00)
- BIOL 623 Advanced Applied Ecology and Conservation (3.00)
- BIOL 624 Advances in Decomposer Communities and Nutrient Cycling (3.00)
- BIOL 633 Advanced Immunology (3.00)

- BIOL 634 Advanced Cell Biology (3.00)
- BIOL 660 Advanced Plant Biochemistry (3.00)
- BIOL 661 Advanced Tissue Culture (3.00)
- BIOL 670 Scientific Communication (3.00)
- BIOL 671 Scanning Electron Microscopy (3.00)
- BIOL 687 Advanced Molecular Genetics (3.00)
- CHEM 677 Enzyme Kinetics and Mechanism (3.00)
- CHEM 678 Protein Engineering and Design (3.00)
- BIOL 616 Current Advances in Ecological Research (3.00)
- BIOL 688 Advances in Biological Regulatory Mechanisms (3.00)
- BIOL 689 Advanced Techniques in Molecular Biology (3.00)
- BIOL 690 Advanced Gene Structure (3.00)

Additional Degree Requirements

Each student is expected to attend and participate in departmental seminars. In addition, students will be required to present a short (20-30 minutes) seminar to the department on their research once during their residency, normally on completion of their first year.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.
5. **Progress Report.** Each student's progress is formally evaluated by the student's advisory committee every six months and a report is submitted to the Graduate Program Director.

Biotechnology and Genomics Graduate Diploma

Admission Requirements

- BSc degree from an accredited university with at least 15 credits in courses at the 200 or 300 level in the following subjects: genetics, cell biology, molecular biology, biochemistry, and 3 credits of laboratory in one or more of these subjects.
- Minimum undergraduate GPA of 3.00 (on a scale with a maximum of 4.30).
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Biology Courses page for course descriptions.

Biotechnology and Genomics Graduate Diploma (30 credits)

21	credits of Core Courses: • BIOL 510 Bioinformatics (3.00) • BIOL 511 Genome Structure (3.00) • BIOL 512 Functional Genomics (3.00) • BIOL 515 Biotechnology and Genomics Laboratory (3.00) • BIOL 516 Project in Biotechnology and Genomics (6.00) • BIOL 529 Values and Biotechnology (3.00)
9	credits of Elective Courses: • BIOL 521 Industrial and Environmental Biotechnology (3.00) • BIOL 523 Agriculture and Agri-Food Biotechnology (3.00) • BIOL 524 High-throughput Instrumentation (3.00) • BIOL 525 Biological Computing and Synthetic Biology (3.00) • CHEM 678 Protein Engineering and Design (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulation Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement.** To graduate, students must have completed all course requirements with a cumulative grade point average of at least 2.70

Chemistry PhD

Admission Requirements

- MSc degree in Chemistry with high standing from a recognized university.
- Comparable qualifications in biology or biochemistry are also acceptable for applicants wishing to do graduate studies in biochemistry.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Fast-tracking and Direct Entry. Upon recommendation by full-time members of the faculty of the Department of Chemistry and Biochemistry, students enrolled in the MSc Chemistry program at Concordia University who have completed a minimum of 6 credits of graduate level course work and who have shown themselves to be outstanding through performance in research may apply for permission to proceed directly to doctoral studies without submitting a master's thesis (fast-tracking). Exceptionally, outstanding students who have completed a BSc in Chemistry or Biochemistry and maintained a grade point average of greater than 3.50 in their last two years of study, as well as and those with external scholarships (NSERC, CIHR, FQRNT) may also apply to the PhD program directly from their BSc program (direct entry). A candidate entering the PhD program under direct entry is required to complete a minimum of 6 credits from graduate courses listed under Topics in addition to the regular 90 credits. Courses taken before students are accepted into the fast-track or direct entry are not transferable to the PhD program.

Co-op. It is also possible to carry out PhD studies on a Co-op basis with the collaboration of an employer. A Co-op graduate student conducts research of interest to the employer, normally in the employer's laboratory, but directs the project toward a thesis topic acceptable to the department at Concordia and under the guidance of an academic supervisor in the department. The student will spend one term, normally with the support of an employer, gaining experience teaching in undergraduate laboratories and participating actively in the departmental seminars. This program will be available in areas of chemistry and biochemistry where the Department has the resources to provide a suitable academic co-supervisor. It is a condition of the program that the employers agree to the publication of thesis results. Prospective applicants should contact the Department for further details.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Chemistry Courses page for course descriptions.

Chemistry PhD (90 credits)

6	credits of courses listed under Chemistry PhD Topic Courses, in the general field of the student's research project
9	credits: • CHEM 896 Research Proposal and Comprehensive Examination (9.00)
72	credits: • CHEM 856 Doctoral Research and Thesis (72.00)
3	credits: • CHEM 668 PhD Research Seminar (3.00)

Chemistry PhD Topic Courses

Topics in Analytical and Bioanalytical Chemistry
• CHEM 610 Selected Topics in Analytical Chemistry (3.00)

- CHEM 611 Advanced Bioanalytical Chemistry (3.00)
- CHEM 612 Analytical Separations (3.00)
- CHEM 614 Modern Aspects of Mass Spectrometry: Metabolomics and Proteomics (3.00)

Topics in Bioorganic and Organic Chemistry
- CHEM 620 Selected Topics in Organic Chemistry (3.00)
- CHEM 621 Physical Organic Chemistry (3.00)
- CHEM 624 Organic Synthesis (3.00)
- CHEM 625 Nucleic Acid Chemistry (3.00)
- CHEM 626 Reactive Intermediates (3.00)
- CHEM 627 Supramolecular Chemistry (3.00)
- CHEM 629 Polymer Chemistry and Nanotechnology (3.00)

Topics in Physical Chemistry
- CHEM 630 Selected Topics in Physical Chemistry (3.00)
- CHEM 631 Computational Chemistry (3.00)
- CHEM 633 Quantum Mechanics in Chemistry (3.00)
- CHEM 635 Interfacial Phenomena (3.00)
- CHEM 636 Molecular Modelling of Proteins (3.00)
- CHEM 638 Physics and Chemistry of Solid State Electronic Materials (3.00)

Topics in Bioinorganic and Inorganic Chemistry
- CHEM 640 Selected Topics in Inorganic Chemistry (3.00)
- CHEM 643 Organometallic Chemistry (3.00)
- CHEM 645 Bioinorganic Chemistry (3.00)
- CHEM 646 Industrial Catalysis (3.00)
- CHEM 647 Solar Energy Conversion (3.00)

Topics in Multidisciplinary Chemistry
- CHEM 650 Selected Topics in Multidisciplinary Chemistry (3.00)
- CHEM 651 Nanochemistry (3.00)
- CHEM 658 Aquatic Biogeochemistry (3.00)
- CHEM 666 MSc Seminar (3.00)

Topics in Biochemistry
- CHEM 670 Selected Topics in Biochemistry and Biophysics (3.00)
- CHEM 674 Chemical Biology of Natural Products (3.00)
- CHEM 676 Structure and Function of Biomembranes (3.00)
- CHEM 677 Enzyme Kinetics and Mechanism (3.00)
- CHEM 678 Protein Engineering and Design (3.00)

Topics in Instrumentation
- CHEM 690 Selected Topics in Instrumentation (3.00)
- CHEM 691 Magnetic Resonance Spectroscopy (3.00)
- CHEM 692 Experimental Protein Chemistry (3.00)

With permission from their supervisory committee students are allowed to substitute graduate level courses from other departments relevant to their research problems, or professional development (e.g., selected MBA courses) as partial fulfillment towards their degree requirements.

Additional Degree Requirements

Seminars. Each student is required to attend and participate in departmental seminars.

Cross-Registration. Students may, with the permission of their supervisory committee, cross-register for courses falling in the Topics categories in other Quebec institutions.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Program Specific** Requirements. Students must obtain an assessment grade point average (AGPA) of 3.00 based on a minimum of 6 credits.
3. **Residence.** The minimum period of residence is two years (6 terms) of full-time graduate study beyond the master's degree or three years (9 terms) of full-time graduate study (or the equivalent in part-time study) beyond the bachelor's degree for those students who are permitted to enrol for doctoral studies without completing a master's degree. It should be understood that this is a minimum requirement, and that a longer period may be necessary in order to complete all of the work that is required for the degree.
4. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
5. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Chemistry MSc

Admission Requirements

- Honours or specialization degree in chemistry or biochemistry or its equivalent.
- Comparable qualifications in related areas such as biology or physics may also be acceptable.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Qualified applicants requiring prerequisite courses may be required to take up to two such courses in addition to their regular graduate program. Applicants with deficiencies in their undergraduate preparation may be required to take a qualifying program. This does not apply to International Students.

Candidates for the master's degree may register on either a full-time or a part-time basis. It is also possible to carry out MSc studies on a CO-OP basis with the collaboration of an employer. Co-op MSc graduate studies are arranged as a form of a full-time or part-time program where the student conducts research of interest to the employer, normally in the employer's laboratory, but directs the project toward a thesis topic acceptable to the department at Concordia and under the guidance of an academic supervisor in the department. The student will spend one term, normally with the support of an employer, gaining experience teaching in undergraduate laboratories and participating actively in the departmental seminars. This program will be available in areas of chemistry and biochemistry where the department has the resources to provide a suitable academic co-supervisor. It is a condition of the program that the employers agree to the publication of thesis results. Prospective applicants should contact the Department for further details.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Chemistry Courses page for course descriptions.

Chemistry MSc (45 credits)

6	credits of courses listed under the Chemistry MSc Topics Courses List, in the general field of the student's research project
3	credits of courses listed from the Chemistry MSc Topics Courses List, outside the field of the student's research project (acceptable to the supervisory committee)
33	credits: • CHEM 655 Master's Research and Thesis (33.00)
3	credits: • CHEM 666 MSc Seminar (3.00)
	Note: With permission from their supervisory committee, students are allowed to take graduate level courses from other departments relevant to their research problems, as partial fulfillment towards their degree requirements.

Chemistry MSc Topics Courses List

Topics in Analytical and Bioanalytical Chemistry
Topics in Bioorganic and Organic Chemistry
Topics in Physical Chemistry
Topics in Bioinorganic and Inorganic Chemistry
Topics in Multidisciplinary Chemistry

Topics in Biochemistry
Topics in Instrumentation

Topics in Analytical and Bioanalytical Chemistry

- CHEM 610 Selected Topics in Analytical Chemistry (3.00)
- CHEM 611 Advanced Bioanalytical Chemistry (3.00)
- CHEM 612 Analytical Separations (3.00)
- CHEM 614 Modern Aspects of Mass Spectrometry: Metabolomics and Proteomics (3.00)

Topics in Bioorganic and Organic Chemistry

- CHEM 620 Selected Topics in Organic Chemistry (3.00)
- CHEM 621 Physical Organic Chemistry (3.00)
- CHEM 623 Modern Aspects of Practical Mass Spectrometry (3.00)
- CHEM 625 Nucleic Acid Chemistry (3.00)
- CHEM 626 Reactive Intermediates (3.00)
- CHEM 627 Supramolecular Chemistry (3.00)
- CHEM 629 Polymer Chemistry and Nanotechnology (3.00)

Topics in Physical Chemistry

- CHEM 630 Selected Topics in Physical Chemistry (3.00)
- CHEM 631 Computational Chemistry (3.00)
- CHEM 633 Quantum Mechanics in Chemistry (3.00)
- CHEM 635 Interfacial Phenomena (3.00)
- CHEM 636 Molecular Modelling of Proteins (3.00)
- CHEM 638 Physics and Chemistry of Solid State Electronic Materials (3.00)

Topics in Bioinorganic and Inorganic Chemistry

- CHEM 640 Selected Topics in Inorganic Chemistry (3.00)
- CHEM 643 Organometallic Chemistry (3.00)
- CHEM 645 Bioinorganic Chemistry (3.00)
- CHEM 646 Industrial Catalysis (3.00)
- CHEM 647 Solar Energy Conversion (3.00)

Topics in Multidisciplinary Chemistry

- CHEM 650 Selected Topics in Multidisciplinary Chemistry (3.00)
- CHEM 651 Nanochemistry (3.00)
- CHEM 652 Nanomaterials Characterization (3.00)
- CHEM 658 Aquatic Biogeochemistry (3.00)
- CHEM 666 MSc Seminar (3.00)

Topics in Biochemistry

- CHEM 670 Selected Topics in Biochemistry and Biophysics (3.00)
- CHEM 674 Chemical Biology of Natural Products (3.00)
- CHEM 676 Structure and Function of Biomembranes (3.00)

- CHEM 677 Enzyme Kinetics and Mechanism (3.00)
- CHEM 678 Protein Engineering and Design (3.00)

Topics in Instrumentation

- CHEM 690 Selected Topics in Instrumentation (3.00)
- CHEM 691 Magnetic Resonance Spectroscopy (3.00)
- CHEM 692 Experimental Protein Chemistry (3.00)

Additional Degree Requirements

Seminars. Each student is required to attend and participate in departmental seminars.

Research Areas. Areas for possible research are listed before the PhD in Philosophy section.

Cross-Registration. Students may, with the permission of their supervisory committee, cross-register for courses currenting in the Topics categories in other Quebec institutions.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Program Specific Requirements.** Students must obtain an assessment grade point average (AGPA) of 2.70 based on a minimum of 6 credits.
3. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study. The degree can normally be completed in two years (6 terms) of full-time study.
4. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
5. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Hispanic Studies MA

Note: Admissions have been suspended.

Admission Requirements

- Honours or Specialization in Spanish, or equivalent degree with a minimum GPA of 3.30 on a 4.30 scale.
- Oral and written competence in Spanish and English or Spanish and French. Applicants must submit a 5-minute voice sample in Spanish in an audio file (mp3, iTunes, or wma) and a 1000-word writing sample in Spanish.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants are required to submit official transcripts, curriculum vitae, three letters of reference, and statement of purpose in English or French. All applications will be reviewed by the Graduate Studies Committee.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

For course descriptions, see the Classics, Modern Languages and Linguistics Courses page.

Hispanic Studies MA (45 credits)

6	credits of Hispanic Studies Core Courses
12	credits chosen from Hispanic Studies Elective Courses
27	credits chosen from Hispanic Studies MA Thesis or Hispanic Studies MA Research Paper

Notes:
1. Subject matter in “topics” courses varies from term to term and from year to year. Details of the courses to be given together with their respective course contents will be available at the beginning of the academic year.
2. In consultation with the Graduate Program Director, students may replace up to 6 credits of reading courses, or credits at the graduate level in another discipline. Permission of the Graduate Program Director of the respective program must also be granted. Interdisciplinary courses, where relevant to the student’s program, may include courses at the graduate level in the Departments of Communication Studies, Education, English, Études françaises, Philosophy, Sociology and Anthropology, and Religions and Cultures. Approval of courses from these departments will be sought on a per-case basis.
3. Students who wish to concentrate in Pedagogy or Translation may take six credits at the graduate level in the department relative to their concentration.

Hispanic Studies Core Courses

- SPAN 601 Discourse Analysis and Research Methods (3.00)
- SPAN 603 Introduction to the Pedagogy of Spanish (3.00)

Hispanic Studies MA Research Paper

- SPAN 682 Research Paper I (12.00)

- SPAN 683 Research Paper II (15.00)

Hispanic Studies MA Thesis

- SPAN 694 Thesis Proposal (3.00)
- SPAN 695 Thesis (24.00)

Hispanic Studies Elective Courses

- SPAN 605 Independent Study (3.00)
- SPAN 681 Research Seminar (3.00)
- SPAN 698 Topics in Current Research (3.00)

Elective courses may also be chosen from the following courses:
Topics in Applied Linguistics and the Pedagogy of Spanish
Topics in Spanish Translation
Topics in Critical Thinking and Theory
Topics in the Subject and Identity
Topics in Exile and Marginality
Topics in History of Ideas in the Hispanic World

Topics in Applied Linguistics and the Pedagogy of Spanish

- SPAN 621 Topics in Applied Linguistics and the Pedagogy of Spanish (3.00)
- SPAN 622 Topics in Applied Linguistics and the Pedagogy of Spanish (3.00)

Topics in Spanish Translation

- SPAN 631 Topics in Spanish Translation (3.00)
- SPAN 632 Topics in Spanish Translation (3.00)
- SPAN 633 Topics in Spanish Translation (3.00)
- SPAN 634 Topics in Spanish Translation (3.00)

Topics in Critical Thinking and Theory

- SPAN 641 Topics in Critical Thinking and Theory (3.00)
- SPAN 642 Topics in Critical Thinking and Theory (3.00)
- SPAN 643 Topics in Critical Thinking and Theory (3.00)
- SPAN 644 Topics in Critical Thinking and Theory (3.00)

Topics in the Subject and Identity

- SPAN 651 Topics in the Subject and Identity (3.00)
- SPAN 652 Topics in the Subject and Identity (3.00)

Topics in Exile and Marginality

- SPAN 661 Topics in Exile and Marginality (3.00)
- SPAN 662 Topics in Exile and Marginality (3.00)
- SPAN 663 Topics in Exile and Marginality (3.00)

- SPAN 664 Topics in Exile and Marginality (3.00)

Topics in History of Ideas in the Hispanic World

- SPAN 671 Topics in History of Ideas in the Hispanic World (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement for the Hispanic Studies MA is three terms (one year) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Communication PhD

Admission Requirements

- MA in Communication or its equivalent.
- A thoroughly articulated research project outline.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.
- **Language Requirements.** Applicants should have a level of competence that would allow them to read technical material and follow lectures and discussions in English. Students may participate in discussions, write reports, examinations and theses in English or French, as they choose.

Additional Admission Requirements

Admission criteria:

- Excellent past academic records.
- Excellence and pertinence of academic background.
- Promise as a scholar.
- Relevance of proposed research to the program.
- Feasibility of proposed research in terms of material and faculty resources.
- Ability to understand English and French.
- Availability of a faculty member to direct the applicant.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Communication Studies Courses page for course descriptions.

Communication PhD (90 credits)

6	credits of Required Courses: • COMS 800 Integrative Seminar (3.00) • COMS 835 Doctoral Pro-Seminar (3.00)
12	credits chosen from Communication PhD Electives
3	credits: • COMS 815 Doctoral Examination (3.00)
6	credits: • COMS 890 Doctoral Thesis Proposal (6.00)
63	credits: • COMS 896 Doctoral Thesis Research (63.00)

Communication PhD Electives (12 credits)

- COMS 805 Research Workshop (3.00)
- COMS 822 Advanced Seminar in Research Methods I (3.00)

- COMS 823 Advanced Seminar in Research Methods II (3.00)
- COMS 841 Cultural Industries (3.00)
- COMS 842 Media Reception (3.00)
- COMS 843 Communication Policy (3.00)
- COMS 844 Uses of Information and Communication Technologies (ICTs) (3.00)
- COMS 851 Speech Communication (3.00)
- COMS 853 Discourse and Representation (3.00)
- COMS 854 Discourse within Social Formations (3.00)
- COMS 861 Organizational Culture (3.00)
- COMS 864 Communication and Change in Organizations (3.00)
- COMS 873 Identities and Cultural Exchange (3.00)
- COMS 874 Globalization of Communication (3.00)
- COMS 875 Technology and Organization (3.00)
- COMS 876 Media Technology as Practice (3.00)
- COMS 877 International Communication and Development (3.00)
- COMS 878 Communication, Conflict and Peace (3.00)
- COMS 879 Human-Computer Interactions (3.00)
- COMS 880 Communication Networks and Organization (3.00)
- COMS 882 Communication, Democracy and Power (3.00)
- COMS 883 History and Historiography of Media and Culture (3.00)
- COMS 884 Cultural Theory in Communication Studies (3.00)
- COMS 885 Popular Culture (3.00)
- COMS 886 Alternative Media (3.00)
- COMS 887 Strategies and Styles in Communication (3.00)
- COMS 888 Discourses of the Body (3.00)
- COMS 889 Theories of Organizational Communication (3.00)
- COMS 891 Communication Technologies and Society (3.00)
- COMS 892 Epistemology and Methodology of Media Creation (3.00)
- COMS 893 Advanced Seminar in Special Topics in the PhD in Communication (3.00)

Additional Degree Requirements

All students must enrol in COMS 800 in the first term of Year 1; COMS 815, COMS 835 and one additional elective course from among the program's offerings in Year 2; and COMS 890 and COMS 896 in Year 3.

Under normal circumstances, students enrol in the Doctoral Examination (COMS 815) in Year 2 of the program. Normally, the written portion of the examination is defended orally by no later than the end of the Fall Term in Year 2. It is compulsory to finish the examination before registering in COMS 835 .

In the term following the completion of course work (usually the sixth term) students should submit a thesis proposal (COMS 890) to their thesis director. Students must have completed the doctoral examination (COMS 815) before registering for the thesis proposal. The thesis proposal should be completed within three years of the student's first enrolment.

All degree requirements, including the thesis, must be completed within six years of the student's first enrolment for full-time studies and eight years for part-time studies.

Supervision. Students are assigned an academic advisor when they first register. Students are required to choose a thesis director before the end of their third term in the program.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence**. The minimum period of residence is six terms including two summer terms of full-time study, or its equivalent in part-time study. Of this, three terms must be taken consecutively.

3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Media Studies MA

Admission Requirements

- Bachelor's degree in communication (or equivalent in a cognate area) with a minimum of 3.00 GPA.
- Experience in media or a media-related field is an asset.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Qualified applicants requiring prerequisite courses may be required to take up to 12 credits in addition to and as part of the regular graduate program. Applicants with deficiencies in their undergraduate preparation are normally required to take qualifying course(s) as deemed appropriate by the program. Credits allowed for previous graduate work must be determined by the department and the university prior to entry to the program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Communication Studies Courses page for course descriptions.

Media Studies MA (45 credits)

45 credits chosen from one of the following options:
Media Studies MA Thesis (Option I)
Media Studies MA Courses (Option II)
Media Studies MA Research-Creation Thesis (Option III)
Media Studies MA Major Research Paper (Option IV)

Media Studies MA Thesis (Option I)

12 credits of Required Courses:
- COMS 600 Communication Theory (3.00)
- COMS 605 Media Research Methods I (3.00)
- COMS 610 Media Studies Seminar (3.00)
- COMS 694 Thesis/Research-Creation Thesis Proposal (3.00)

12 credits of Elective Courses chosen in consultation with the student's faculty advisor and approved by the department's graduate studies committee. If approved by the department's graduate studies committee, and with the permission of the department concerned, up to 3 of these credits may be taken in cognate graduate courses offered by other departments in the university.

21 credits:
- COMS 695 Thesis (21.00)

Media Studies MA Courses (Option II)

9 credits of Required Courses:
- COMS 600 Communication Theory (3.00)
- COMS 605 Media Research Methods I (3.00)
- COMS 610 Media Studies Seminar (3.00)

36 credits of Elective Courses chosen in consultation with the student's faculty advisor and approved by the department's graduate studies committee. If approved by the department's graduate studies committee, and with the permission of the department concerned, up to 9 of these credits may be taken in cognate graduate courses offered by other departments in the university.

Media Studies MA Research-Creation Thesis (Option III)

12 credits of Required Courses:
- COMS 600 Communication Theory (3.00)
- COMS 605 Media Research Methods I (3.00)
- COMS 610 Media Studies Seminar (3.00)
- COMS 694 Thesis/Research-Creation Thesis Proposal (3.00)

12 credits of Elective Courses chosen in consultation with the student's faculty advisor and approved by the department's graduate studies committee. If approved by the department's graduate studies committee, and with the permission of the department concerned, up to 3 of these credits may be taken in cognate graduate courses offered by other departments in the university.

21 credits:
- COMS 697 Research-Creation Thesis (21.00)

Media Studies MA Major Research Paper (Option IV)

9 credits of Required Courses:
- COMS 600 Communication Theory (3.00)
- COMS 605 Media Research Methods I (3.00)
- COMS 610 Media Studies Seminar (3.00)

21 credits of Elective Courses chosen in consultation with the student's faculty advisor and approved by the department's graduate studies committee. If approved by the department's graduate studies committee, and with the permission of the department concerned, up to 9 of these credits may be taken in cognate graduate courses offered by other departments in the university.

15 credits:
- COMS 698 Major Research Paper (15.00)

Additional Degree Requirements

Students may enter one of the four options Media Studies MA Thesis (Option I) , Media Studies MA (Option II) , Media Studies MA Research-Creation Thesis (Option III) or Major Research Paper (Option IV) . Students elect an option after their first term of study with permission of the program director. The Media Studies MA Research-Creation Thesis (Option III) is restricted to students with adequate and appropriate media experience. The program does not provide media training.

Academic Regulations

1. **Academic Standing**. Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulation Academic Regulations page for further details regarding the Time Limit Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have completed all program requirements and attained a cumulative GPA of at least 2.70.

Communication Studies Graduate Diploma

Admission Requirements

- Bachelor's degree (or equivalent) with high standing from a recognized institution in a field other than communication.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants are required to submit a letter of intent of no more than 600 words outlining their background, academic and work experience, and career goals.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Communication Studies Courses page for course descriptions.

Communication Studies Graduate Diploma (30 credits)

18 credits of Core Courses:
- COMS 505 Introduction to Communication Theory and History (3.00)
- COMS 506 In the Field: Methods in Communication Studies and Practice (3.00)
- COMS 510 Graduate Diploma Seminar (3.00)
- COMS 562 Media Production: Sound (3.00)
- COMS 569 Media Production: Moving Images (3.00)
- COMS 570 Media Production: Intermedia (3.00)

12 credits of Elective Courses chosen in consultation with the Diploma Program Director:
- COMS 507 Advanced Scriptwriting for Media (3.00)
- COMS 512 Discourses of Dissent (3.00)
- COMS 513 Cultures of Production (3.00)
- COMS 514 Production Administration (3.00)
- COMS 516 Advanced Topics in Documentary Film and Video (3.00)
- COMS 518 Cultures of Globalization (3.00)
- COMS 519 Communications and Indigenous Peoples (3.00)
- COMS 521 Communication Technologies and Gender (3.00)
- COMS 522 Perspectives on the Information Society (3.00)
- COMS 523 Media Art and Aesthetics (3.00)
- COMS 524 Alternative Media (3.00)
- COMS 525 Media Forecast (3.00)
- COMS 532 Communication, Culture and Popular Art (3.00)
- COMS 533 Semiotics (3.00)
- COMS 534 Advanced Topics in Film Studies (3.00)
- COMS 535 Communications, Development and Colonialism (3.00)
- COMS 537 Race, Ethnicity and Media (3.00)
- COMS 538 Organizational Communication (3.00)
- COMS 539 Political Communication (3.00)
- COMS 540 Acoustic Communication and Design (3.00)
- COMS 541 Sexuality and Public Discourse (3.00)
- COMS 542 Advanced Topics in the Photographic Image (3.00)

- COMS 543 Film Criticism (3.00)
- COMS 544 Reception Studies (3.00)
- COMS 545 Television Studies (3.00)
- COMS 546 Rhetoric and Communication (3.00)
- COMS 547 International Communication (3.00)
- COMS 548 Media Policy in Canada (3.00)
- COMS 553 Communication Ethics (3.00)
- COMS 561 Communicative Performances and Interventions (3.00)
- COMS 580 Selected Topics in Communication Studies (3.00)
- COMS 583 Internship in Communication Studies (3.00)
- COMS 585 Directed Study in Communication Studies (3.00)
- COMS 586 Directed Study in Communication Studies (3.00)
- COMS 598 Advanced Topics in Communication Studies (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement**. In order to graduate, students must have a cumulative GPA of at least 2.70.

Economics PhD

Admission Requirements

- MA in economics from a recognized university with a cumulative GPA of 3.50 or equivalent.
- Students with a high standing in a master's degree or equivalent in other fields, such as commerce, mathematics or business administration from a recognized university may be admitted, subject to satisfactory completion of qualifying requirements, if necessary.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Students with a BA (honours) or equivalent with high standing in economics may apply for admission directly to doctoral studies.

GRE. While writing the Graduate Record Examinations (GRE) is not required, such scores certainly enhance an application for admission and especially for funding.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Economics Courses page for course descriptions.

Economics PhD (90 credits)

19	credits of Required Courses: • ECON 612 Microeconomics I (3.00) • ECON 613 Microeconomics II (4.00) • ECON 615 Macroeconomics I (3.00) • ECON 616 Macroeconomics II (3.00) • ECON 680 Econometric Theory I (3.00) • ECON 681 Econometric Theory II (3.00)
	Students who have taken ECON 612 , ECON 615 , and ECON 680 as part of their MA studies in the Department of Economics must substitute them with three electives with department approval.
12	credits of Program Elective Courses selected from the Department offerings.
13	credits: • ECON 802 Comprehensive Examination (4.00) • ECON 804 Thesis Proposal (3.00) • ECON 806 Research Seminar (6.00)
46	credits: • ECON 807 Thesis (46.00)

Additional Degree Requirements

A recognition of past graduate work as partial fulfillment of the course requirements for the PhD degree is at the discretion, and subject to the approval of, the Graduate Program Director and the Dean of Graduate Studies.

Fields of Specialization. Each PhD student must specialize in two fields of economics. A specialization is obtained by 1) successfully completing two courses from one of the following fields: Economic Growth and Development; Environmental Economics; Financial

Economics; Health Economics; Industrial Economics; International Economics; Labour Economics; Public Economics; or, 2) by completing one course in addition to the two required courses for a specialization in microeconomics, macroeconomics, and econometrics. Students must consult the Graduate Program Director to confirm the course selection that would constitute an acceptable field of specialization.

Language Requirement. PhD candidates must pass an examination in French. International students may, with the approval of the Department, replace French with another language in which there exists a sufficiently large economics literature.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum period of residence is two calendar years (6 terms) of full-time graduate study beyond the master's degree, or three calendar years (9 terms) of full-time graduate study beyond the bachelor's degree for those permitted to enrol for doctoral studies without completing a master's degree. A period of full-time study, allowed or required by the Department to be spent at another institution with adequate research facilities, may be offered towards partial fulfillment of the residence requirements for the degree of PhD at Concordia University. In each case, the Department must obtain approval of the Council of the School of Graduate Studies.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Economics MA

Admission Requirements

- Honours degree in economics from a recognized university, or the equivalent, with a cumulative GPA of 3.00.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Some applicants may be required to pass a qualifying program, as a condition for entry into the regular MA program.

The Economics Co-operative Program

The Economics Co-operative program is offered to those enrolled in an MA Program in Economics. The academic content of the Co-operative Program is identical to that of the regular program, except that students complete one internship which spans one or two terms . Students are supervised personally and must meet requirements specified by the Faculty of Arts and Science, the School of Graduate Studies and the Institute for Co-operative Education.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Economics Courses page for course descriptions.

Economics MA (45 credits)

12 credits of Required Courses:
- ECON 612 Microeconomics I (3.00)
- ECON 615 Macroeconomics I (3.00)
- ECON 680 Econometric Theory I (3.00)
- ECON 696 Research Methodology in Economics (3.00)

15 credits chosen in consultation with the Graduate Program Director.
Each MA student is required to complete one field of specialization by successfully completing two courses from the sequences offered in any of the following areas: Econometrics; Economic Growth and Development; Financial Economics; Industrial Economics; International Economics; Labour Economics; Macroeconomics; Microeconomics; Public Economics.

18 credits:
- ECON 705 Master's Thesis (18.00)

Cognate Courses:
In addition, graduate students in economics may be permitted to register for a limited number of courses listed in the Finance, Management, Marketing, and Administration MSc (MSCA) Courses section of the Calendar. In all such cases, prior permission of the Department of Economics and the John Molson School of Business is required.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, a student must have a cumulative GPA of at least 2.70.

Economics Graduate Diploma

Admission Requirements

- Undergraduate degree with a cumulative GPA of 3.00 or the equivalent.
- Sufficient credits in economics and basic statistical and mathematical methods to cope with graduate-level courses in economics.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

In exceptional cases, and at the discretion of the Graduate Program Director, an applicant who has not yet satisfied this Arts and Science prerequisite may be admitted, providing that the missing courses are included in the student's program in addition to the normal course requirements for the diploma.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Economics Courses page for course descriptions.

Each student's program of study must be approved by the Graduate Program Director.

Economics Graduate Diploma (30 credits)

6	credits of Core Courses: • ECON 501 Advanced Microeconomic Theory (3.00) • ECON 503 Advanced Macroeconomic Theory (3.00)
6	credits minimum chosen from: Economics Graduate Diploma Class B Courses
18	credits maximum chosen from the following lists, with no more than six credits chosen from Class C: Economics Graduate Diploma Class A Courses Economics Graduate Diploma Class B Courses Economics Graduate Diploma Class C Courses
	Note: No more than 12 credits can be earned as pro-tanto credit for previous work.

Economics Graduate Diploma Class A Courses

- ECON 509 History of Early Economic Thought (3.00)
- ECON 510 History of Modern Economic Thought (3.00)
- ECON 513 Economic Growth and Fluctuations (3.00)
- ECON 514 Economic Development: Policy Analysis (3.00)
- ECON 521 Econometrics I (3.00)
- ECON 522 Econometrics II (3.00)
- ECON 523 Topics in Applied Econometrics (3.00)
- ECON 525 Mathematics for Advanced Study in Economics (3.00)
- ECON 530 Transportation Economics (3.00)
- ECON 532 Monetary Theory (3.00)
- ECON 533 Financial Economics (3.00)
- ECON 536 The Economics of Taxation (3.00)

- ECON 537 Economics of Public Expenditure (3.00)
- ECON 540 Market Design (3.00)
- ECON 542 International Economics: Trade Theory (3.00)
- ECON 543 International Economics: Finance (3.00)
- ECON 550 Economic History (3.00)
- ECON 561 Industrial Organization (3.00)
- ECON 562 The Corporate Economy (3.00)
- ECON 563 Economics of Regulation (3.00)
- ECON 564 Game Theory, Information, and Economic Modelling (3.00)
- ECON 565 The Economics of Professional Sport (3.00)
- ECON 581 Labour Economics (3.00)
- ECON 582 Economics of Personnel and Industrial Relations (3.00)
- ECON 583 Employment, Earnings and Labour Market Policies (3.00)
- ECON 585 Health Economics (3.00)
- ECON 591 Environmental Economics (3.00)
- ECON 592 Advanced Urban Economics (3.00)
- ECON 593 Regional Economics (3.00)
- ECON 595 Economics of Transportation and Communications (3.00)
- ECON 596 Natural Resource Economics (3.00)
- ECON 597 Income Distribution and Economic Inequality (3.00)
- ECON 598 Advanced Topics in Economics (3.00)

Economics Graduate Diploma Class B Courses

All 600-level courses listed in the Economics Courses section of the Calendar.

Economics Graduate Diploma Class C Courses (6 credits)

All courses listed in the Finance, Management, Marketing, and Administration MSc (MSCA) Courses section of the Calendar with prior permission of the Department of Economics and the John Molson School of Business. No more than six credits may be taken from this list.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement.** To graduate, students must have completed all course requirements with a cumulative grade point average of at least 2.70.

Education PhD

Admission Requirements

- MA in Education, Applied Linguistics, Child Studies, Educational Studies, or Educational Technology, with high standing, from an accredited university.
- Applicants with a Master's degree in a related field or discipline, such as psychology, sociology, anthropology, adult education, and human resource development, are considered.
- Applicants from other disciplines might be offered conditional admission which may include fulfilling prerequisite courses.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Education Courses page for course descriptions.

Education PhD (90 credits)

12	credits of Required Courses: • EDUC 806 Quantitative Methods (3.00) • EDUC 807 Qualitative Methods (3.00) • EDUC 808 Reporting Research (3.00) • EDUC 809 Advanced Issues in Education (3.00)
9	credits of Elective Courses
12	credits: • EDUC 890 Comprehensive Examination (12.00)
9	credits: • EDUC 891 Doctoral Proposal (9.00)
48	credits: • EDUC 895 Doctoral Dissertation (48.00)

Additional Degree Requirements

Orientation. Each candidate is assigned an interim research supervisor and a supervisory committee. This interim supervisory committee consists of three members of the faculty, including a research supervisor. This supervisory committee advises the student on courses to take, including prerequisite courses where necessary (to be determined no later than the first two weeks of the student's first term), and arranges for the comprehensive examination. At this time the membership of the student's interim committee is replaced by a dissertation committee of the student's choice.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum period of residence is two years (6 terms) of full-time study beyond the master’s degree, or the equivalent in part-time study. A minimum of one year of full-time study is highly recommended.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.

4. **Graduation Requirement.** To graduate, students must have a cumulative GPA of at least 3.00.

Applied Linguistics MA

Admission Requirements

- Undergraduate degree with a minimum GPA of 3.00 (B average).
- Academic concentration in second language acquisition, applied linguistics, pedagogy, education, or related discipline.
- Assets: professional experience in the field of second language teaching and learning or related areas; knowledge of a second language.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants are selected on the basis of their past academic record, competence in written and spoken English, letters of recommendation, and experience teaching a second or a foreign language.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Education Courses page for course descriptions.

Applied Linguistics MA (45 credits)

45 credits chosen from one of the following options:
Applied Linguistics MA: Thesis
Applied Linguistics MA: Course-based

Applied Linguistics MA: Thesis (45 credits)

9 credits of Required Courses:
- APLI 604 Applied Language Studies (3.00)
- APLI 621 Issues in Second Language Acquisition (3.00)
- APLI 660 Research Methods I (3.00)

3 credits chosen from Cluster A: Applied Linguistics Focus on Theory

3 credits chosen from Cluster B: Applied Linguistics Focus on Language

3 credits chosen from Cluster C: Applied Linguistics Focus on Pedagogy

6 credits of Elective Courses chosen from any of the following clusters or from the list of elective courses. Electives may also be chosen from courses approved by the graduate program director.
Cluster A: Applied Linguistics Focus on Theory
Cluster B: Applied Linguistics Focus on Language
Cluster C: Applied Linguistics Focus on Pedagogy
Applied Linguistics Elective Courses

3 credits:
- APLI 690 Thesis Proposal (3.00)

18 credits:

- APLI 691 Thesis (18.00)

Note: Up to 9 credits from other departments or universities may be credited toward the degree.

Applied Linguistics MA: Course-based (45 credits)

9 credits of Required Courses:

- APLI 604 Applied Language Studies (3.00)
- APLI 621 Issues in Second Language Acquisition (3.00)
- APLI 660 Research Methods I (3.00)

6 credits chosen from Cluster A: Applied Linguistics Focus on Theory

6 credits chosen from Cluster B: Applied Linguistics Focus on Language

6 credits chosen from Cluster C: Applied Linguistics Focus on Pedagogy

6 credits of Elective Courses chosen from any of the following clusters or electives. Electives may also be chosen from courses approved by the graduate program director.

Cluster A: Applied Linguistics Focus on Theory
Cluster B: Applied Linguistics Focus on Language
Cluster C: Applied Linguistics Focus on Pedagogy
Applied Linguistics Elective Courses

3 credits:

- APLI 695 Research Proposal (3.00)

9 credits:

- APLI 696 Research Paper (9.00)

Up to 9 credits from other departments or universities may be credited toward the degree.

Cluster A: Applied Linguistics Focus on Theory

- APLI 623 Sociolinguistic Aspects of Bilingualism and Multilingualism (3.00)
- APLI 624 Psycholinguistic Aspects of Second Language Acquisition (3.00)
- APLI 626 Variationist Second Language Acquisition (3.00)
- APLI 627 Individual Differences in Second Language Acquisition (3.00)
- APLI 634 Cross-Linguistic Influence (3.00)

Cluster B: Applied Linguistics Focus on Language

- APLI 601 Phonological Aspects of Second Language Acquisition (3.00)
- APLI 610 Teaching and Learning Second Language Vocabulary (3.00)
- APLI 616 Pedagogical Grammar (3.00)
- APLI 636 Language Awareness (3.00)
- APLI 643 Pragmatics and Second Language Acquisition (3.00)

Cluster C: Applied Linguistics Focus on Pedagogy

- APLI 630 Second Language Syllabus Design and Curriculum Planning (3.00)APLI 625
- APLI 635 Language Assessment (3.00)

- APLI 644 Technology in Language Learning (3.00)
- APLI 646 Literacy (3.00)
- APLI 647 Supervision of Practice Teaching (3.00)

Applied Linguistics Elective Courses

- APLI 641 Research Methods II (3.00)
- APLI 651 Special Topics in Applied Linguistics (3.00)
- APLI 671 Reading Course in Applied Linguistics I (3.00)
- APLI 672 Reading Course in Applied Linguistics II (3.00)
- APLI 673 Reading Course in Applied Linguistics III (3.00)
- APLI 674 Reading Course in Applied Linguistics IV (3.00)
- APLI 675 Reading Course in Applied Linguistics V (6.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations Academic Regulation page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Child Studies MA

Admission Requirements

- Undergraduate degree with a minimum of a B average and a significant concentration in child studies, education or related discipline.
- Minimum one year of professional experience in the field of child care, education or related areas is desirable.
- Bilingualism is an asset, but not a requirement.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants will be selected on the basis of past academic records, letters of recommendation, field experience, and the relevance of their proposed research to the areas of specialization of program faculty.

The equivalence of foreign degrees is assessed by the School of Graduate Studies and is determined by consideration of the total length of program study (primary through university) as well as the quality and content of post-secondary study and its relevance to this program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Education Courses page for course descriptions.

Child Studies MA (45 credits)

45 credits chosen from:
Child Studies MA with Thesis
Child Studies MA with Internship

Child Studies MA with Thesis (45 credits)

15 credits of Core Courses:
- CHST 600 Advanced Child Development (3.00)
- CHST 603 Seminar: Issues in Child Studies (3.00)
- CHST 605 Quantitative Methods of Inquiry (3.00)
- CHST 606 Qualitative Methods of Inquiry (3.00)
- CHST 608 Field Observations (3.00)

9 credits minimum of Elective Courses chosen from the following courses, in consultation with the student's advisor:
- CHST 610 Applied Cognition and Learning (3.00)
- CHST 614 Social Processes (3.00)
- CHST 618 Childhood Settings (3.00)
- CHST 620 Children's Play: From Theory to Practice (3.00)
- CHST 622 The Family (3.00)
- CHST 624 Curriculum Models in Childhood Settings (3.00)
- CHST 630 Issues in Education: Language, Literacy, Numeracy, and Scientific Reasoning (3.00)
- CHST 632 Issues in Inclusive and Special Education (3.00)
- CHST 640 Special Topics in Child Studies (3.00)
- CHST 650 Directed Study (3.00)

21 credits Thesis Proposal, Research, and Thesis:

- CHST 697 Thesis Proposal (3.00)
- CHST 698 Research and Thesis (18.00)

Child Studies MA with Internship (45 credits)

15 credits of Core Courses:

- CHST 600 Advanced Child Development (3.00)
- CHST 603 Seminar: Issues in Child Studies (3.00)
- CHST 605 Quantitative Methods of Inquiry (3.00)
- CHST 606 Qualitative Methods of Inquiry (3.00)
- CHST 608 Field Observations (3.00)

12 credits minimum of Elective Courses chosen from the following courses, in consultation with the academic advisor:

- CHST 610 Applied Cognition and Learning (3.00)
- CHST 614 Social Processes (3.00)
- CHST 618 Childhood Settings (3.00)
- CHST 620 Children's Play: From Theory to Practice (3.00)
- CHST 622 The Family (3.00)
- CHST 624 Curriculum Models in Childhood Settings (3.00)
- CHST 630 Issues in Education: Language, Literacy, Numeracy, and Scientific Reasoning (3.00)
- CHST 632 Issues in Inclusive and Special Education (3.00)
- CHST 640 Special Topics in Child Studies (3.00)
- CHST 650 Directed Study (3.00)

18 credits Proposal, Field Placements, and Report:

- CHST 690 Internship Proposal (3.00)
- CHST 691 Internship Field Placement I (3.00)
- CHST 692 Internship Field Placement II (6.00)
- CHST 699 Internship Report (6.00)

Academic Regulations

1. **Academic Standing**. Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** To graduate, students must have completed all course requirements with a cumulative GPA of at least 2.70.

Educational Studies MA

Admission Requirements

- Undergraduate degree with a minimum GPA of 3.00 (B average) with an appropriate concentration in a field of study relevant to Educational Studies.
- Minimum of two years professional activity in education or an undergraduate record which includes at least three courses in education, each with a grade of B or better.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Qualified applicants who fail to meet the criteria outlined may be required to take up to 12 undergraduate credits in addition to the regular graduate program, or, as appropriate, a Qualifying Program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Education Courses page for course descriptions.

Educational Studies MA (45 credits)

Educational Studies MA with Thesis
Educational Studies MA with Directed Study

Educational Studies MA with Thesis

6 credits minimum of Core Courses:
- ESTU 601 Philosophical Issues in Educational Research (3.00)
- ESTU 611 Philosophical Perspectives in Education (3.00)
- ESTU 612 Historical Perspectives in Education (3.00)
- ESTU 613 Anthropological Concepts and Methods in Education (3.00)
- ESTU 614 Social Psychological Foundations of Education (3.00)
- ESTU 615 Introduction to Research in Education (3.00)
- ESTU 635 Studies in Educational Change (3.00)
- ESTU 644 School and Society (3.00)
- ESTU 670 Adult Education as a Field of Study (3.00)

18 credits of Elective Courses

21 credits:
- ESTU 690 Thesis and Tutorial (21.00)

Educational Studies MA with Directed Study

12 credits minimum of Core Courses chosen in consultation with an academic advisor:
- ESTU 601 Philosophical Issues in Educational Research (3.00)
- ESTU 611 Philosophical Perspectives in Education (3.00)
- ESTU 612 Historical Perspectives in Education (3.00)

- ESTU 613 Anthropological Concepts and Methods in Education (3.00)
- ESTU 614 Social Psychological Foundations of Education (3.00)
- ESTU 615 Introduction to Research in Education (3.00)
- ESTU 635 Studies in Educational Change (3.00)
- ESTU 644 School and Society (3.00)
- ESTU 670 Adult Education as a Field of Study (3.00)

21 credits of Elective Courses

12 credits:
- ESTU 692 Directed Study (with Extended Essay or Research Project) (12.00)

Concentration in Adult Education

In either the thesis or directed study option, students may complete a concentration in Adult Education. As part of the required core courses, students must take ESTU 670 and three 3-credit courses chosen from Adult Education Courses .

Adult Education Courses

9 credits chosen from:
- ESTU 671 Adults as Learners (3.00)
- ESTU 672 Facilitating Adult Learning (3.00)
- ESTU 673 Administration of Adult Education Programs (3.00)
- ESTU 674 Evaluating Adult Learning Projects (3.00)
- ESTU 675 Concepts and Values in Adult Education (3.00)
- ETEC 676 Human Resources Development (3.00)
- ESTU 677 Adult Education II - Selected Topics (3.00)

Additional Degree Requirements

Courses. The degree requirements (45 credits) can be met by the successful completion either of course work and a thesis in an approved area, or of more extended course work and ESTU 692 Directed Study (with Extended Essay or Research Project). The choice of a thesis or directed study option is normally determined at an early stage in the student's program. A tentative detailed outline of the proposed research topic must be submitted with the application for admission to the program. A student who completes a thesis or a directed study is normally required to defend it in an oral examination. Proposed research topics in both options must be approved by the graduate Educational Studies Committee.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence**. The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Educational Technology MA

Admission Requirements

- Bachelor's degree with at least a major or the equivalent in any subject.
- Average of at least a B in the major or equivalent.
- Students from the Diploma in Instructional Technology (who have not graduated from the Diploma) may apply for admission with advanced standing.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Students from the Instructional Technology Graduate Diploma may transfer a maximum of 15 credits. An interview may be required.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Education Courses page for course descriptions.

Educational Technology MA (45 credits)

45 credits chosen from:
Educational Technology MA with Thesis
Educational Technology MA with Internship

Educational Technology MA with Thesis (45 credits)

Note: The individual course of study is decided in consultation with the student's academic advisor, although certain courses are required of all students.

12 credits of Core Courses:
- ETEC 613 Learning Theories (3.00)
- ETEC 640 Research Methods I (3.00)
- ETEC 641 Research Methods II (3.00)
- ETEC 650 Fundamentals of Instructional Design (3.00)

15 credits of Elective Courses. In addition to the courses listed below, students may be permitted to register for up to two elective courses (6 credits) offered in other graduate programs. In all such cases, prior permission of the Graduate Program Director is required.
- ETEC 607 Philosophical Issues in Educational Research (3.00)
- ETEC 634 Communicating Instructional Content (3.00)
- ETEC 636 Evaluation in Education and Training (3.00)
- ETEC 637 Educational Gaming and Modelling (3.00)
- ETEC 651 Fundamentals of Human Performance Technology (3.00)
- ETEC 652 Knowledge Management (3.00)
- ETEC 660 Introduction to Educational Computing (3.00)
- ETEC 662 Social Technologies and the Sociocultural Aspects of Learning (3.00)
- ETEC 665 Introduction to Digital Media in Education (3.00)
- ETEC 666 Contemporary Use of Simulation in Training and Education (3.00)
- ETEC 669 Designing and Developing Interactive Instruction (3.00)

- ETEC 672 Project Management (3.00)
- ETEC 676 Human Resources Development (3.00)
- ETEC 681 Fundamentals of Distance Education (3.00)
- ETEC 690 Field Experience (3.00)
- ETEC 691 Advanced Readings and Research in Educational Technology I (3.00)
- ETEC 692 Advanced Readings and Research in Educational Technology II (3.00)
- ETEC 693 Special Issues in Educational Technology (3.00)

18 credits Thesis (Area I) or Thesis-Equivalent (Area II):

- ETEC 795 Thesis Proposal (3.00)This option is divided into two areas: Area I (Research and Development of Educational
- ETEC 796 Thesis or Thesis-Equivalent (15.00)Technology) and Area II (Production and Evaluation of Educational Materials).

Thesis (Area I): Students must complete a written thesis proposal, a thesis and an oral defence.

Thesis-Equivalent (Area II): Students must complete a written thesis- equivalent proposal, a thesis-equivalent and an oral defence. Students are required to produce educational materials to achieve specific objectives (e.g., an educational television production or a computer-based instructional program) and their evaluation.

Please see the ETEC 795 and ETEC 796 course descriptions for details.

Educational Technology MA with Internship (45 credits)

Note: The individual course of study is decided in consultation with the academic advisor, although certain courses are required of all students.

12 credits of Core Courses:

- ETEC 613 Learning Theories (3.00)
- ETEC 640 Research Methods I (3.00)
- ETEC 650 Fundamentals of Instructional Design (3.00)
- ETEC 651 Fundamentals of Human Performance Technology (3.00)

3 credits chosen from:

ETEC 671

- ETEC 673 Consulting Skills for Educational Technologists (3.00)

12 credits minimum of Elective Courses. In addition to the courses listed below, students may be permitted to register for up to two elective courses (6 credits) offered in other graduate programs. In all such cases, prior permission of the Graduate Program Director is required.

- ETEC 607 Philosophical Issues in Educational Research (3.00)ETEC 680
- ETEC 634 Communicating Instructional Content (3.00)
- ETEC 636 Evaluation in Education and Training (3.00)
- ETEC 637 Educational Gaming and Modelling (3.00)
- ETEC 652 Knowledge Management (3.00)
- ETEC 660 Introduction to Educational Computing (3.00)
- ETEC 662 Social Technologies and the Sociocultural Aspects of Learning (3.00)
- ETEC 665 Introduction to Digital Media in Education (3.00)
- ETEC 666 Contemporary Use of Simulation in Training and Education (3.00)
- ETEC 669 Designing and Developing Interactive Instruction (3.00)
- ETEC 672 Project Management (3.00)
- ETEC 676 Human Resources Development (3.00)
- ETEC 681 Fundamentals of Distance Education (3.00)
- ETEC 690 Field Experience (3.00)
- ETEC 691 Advanced Readings and Research in Educational Technology I (3.00)
- ETEC 692 Advanced Readings and Research in Educational Technology II (3.00)
- ETEC 693 Special Issues in Educational Technology (3.00)

18 credits Internships and Internship Report:

- ETEC 781 Internship I (3.00)ETEC 791

- ETEC 782 Internship II (3.00)
- ETEC 783 Internship III (3.00)
- ETEC 784 Internship IV (3.00)
- ETEC 785 Internship V (3.00)
- ETEC 792 Internship Report (3.00)

Additional Degree Requirements

The individual course of study is decided in consultation with the student's academic advisor, although certain courses are required of all students.

Cognate Courses. Students in educational technology programs may be permitted to register for up to two elective courses (6 credits) offered in other graduate programs. In all such cases, the Graduate Program Director must approve the courses before registration.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement**. In order to graduate, students must have a cumulative GPA of at least 2.70.

Adult Education Graduate Diploma

Admission Requirements

- Bachelor's degree or equivalent.
- Active involvement in some area of adult education or the equivalent of one year's experience in the field (e.g., as group leader, trainer, nurse educator, volunteer worker or administrator in an academic institution, business, industry, government or community organization).
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Education Courses page for course descriptions.

Adult Education Graduate Diploma (30 credits)

9 credits chosen from:
- ADIP 500 Adult Education in Québec as a Field of Study (3.00)
- ADIP 585 Integrative Internship I (3.00)
- ADIP 586 Integrative Internship II (3.00)

3 credits chosen from:
- ADIP 501 Philosophical Issues in Educational Research (3.00)
- ADIP 511 Educational Problems in Philosophical Perspective (3.00)
- ADIP 512 Educational Problems in Historical Perspective (3.00)
- ADIP 535 Studies in Educational Change (3.00)

3 credits chosen from:
- ADIP 513 Anthropological Concepts and Methods in Education (3.00)
- ADIP 514 Social Psychological Foundations of Education (3.00)
- ADIP 515 Research Issues and Methodologies in Education (3.00)
- ADIP 544 School and Society (3.00)

9 credits chosen from:
- ADIP 510 Adult Education in Québec and Canada (3.00)
- ADIP 520 Adults as Learners (3.00)
- ADIP 530 Roles and Competencies of Adult Educators (3.00)
- ADIP 533 Facilitating Adult Learning (3.00)
- ADIP 540 Introduction to Research in Adult Education (3.00)
- ADIP 541 Designing Adult Learning Projects (3.00)
- ADIP 542 Evaluating Adult Learning Projects (3.00)
- ADIP 550 Reflective Practice I (3.00)
- ADIP 551 Introduction to Administration of Adult Education Programs (3.00)
- ADIP 570 Workshops for Adult Educators (3.00)
- ADIP 572 Concepts and Values in Adult Education (3.00)
- ADIP 588 Advanced Topics in Adult Education (3.00)
- ADIP 589 Advanced Topics in Adult Education (3.00)
- ADIP 590 Issues in the Practice in Adult Education (3.00)
- ADIP 597 Adult Education I - Selected Topics (3.00)
- ADIP 598 Adult Education II - Selected Topics (3.00)

6	credits chosen from another graduate program in consultation with the graduate director or student advisor. In special circumstances students may, in consultation with the graduate program director or student advisor, individualize their program of study within the standards set out by the School of Graduate Studies.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement**. To graduate, students must have completed all course requirements with a cumulative GPA of at least 2.70.

Instructional Technology Graduate Diploma

Admission Requirements

- Bachelor's degree with at least a major or the equivalent in any subject.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

The program is open to full-time and part-time students without preference. An interview may be required.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Education Courses page for course descriptions.

Instructional Technology Graduate Diploma (30 credits)

Note: Research papers, essays, examinations or preparation of audio-visual materials may be required as part of the work for individual courses.

9	credits of Required Courses: • ETEC 613 Learning Theories (3.00) • ETEC 650 Fundamentals of Instructional Design (3.00) • ETEC 651 Fundamentals of Human Performance Technology (3.00)
3	additional credits of Required Courses chosen from: • ETEC 671 Administering Educational Technology Groups (3.00) • ETEC 673 Consulting Skills for Educational Technologists (3.00)
18	credits of Elective Courses: • ETEC 607 Philosophical Issues in Educational Research (3.00) • ETEC 634 Communicating Instructional Content (3.00) • ETEC 636 Evaluation in Education and Training (3.00) • ETEC 637 Educational Gaming and Modelling (3.00) • ETEC 640 Research Methods I (3.00) • ETEC 641 Research Methods II (3.00) • ETEC 652 Knowledge Management (3.00) • ETEC 660 Introduction to Educational Computing (3.00) • ETEC 662 Social Technologies and the Sociocultural Aspects of Learning (3.00) • ETEC 665 Introduction to Digital Media in Education (3.00) • ETEC 666 Contemporary Use of Simulation in Training and Education (3.00) • ETEC 669 Designing and Developing Interactive Instruction (3.00) • ETEC 672 Project Management (3.00) • ETEC 676 Human Resources Development (3.00) • ETEC 681 Fundamentals of Distance Education (3.00) • ETEC 690 Field Experience (3.00) • ETEC 693 Special Issues in Educational Technology (3.00)

Additional Degree Requirements

Language Competency. French or other language requirements for students undertaking a field experience are determined and assessed by the hosting organization. It is the student's responsibility to attain the competency level required.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement.** To graduate, students must have completed all course requirements with a cumulative GPA of at least 2.70.

Teaching of Higher and Continuing Education (C-TEACH) Graduate Certificate

Admission Requirements

- Current status as a graduate degree student or earned master's degree.
- Minimum CGPA of 3.00 on scale of 4.30 (or equivalent in last completed degree).
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to work as an instructor. Language proficiency requirements are: IELTS: a minimum overall score of 6.5 with at least a 7.0 each on the component scores for speaking and listening; and TOEFL: minimum overall score of 92 with 25 each on the component scores for speaking and listening. Please refer to the English language proficiency page for further information on requirements and exemptions.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 15 credits. Students earn the certificate by completing the two micro-programs:

- Micro-program in the Foundations of Teaching in Higher and Continuing Education (9 credits)
- Micro-program in the Practice of Teaching in Higher and Continuing Education

Please see the Certificate in the Teaching of Higher and Continuing Education (C-TEACH) Courses page for course descriptions.

Teaching of Higher and Continuing Education Graduate Certificate (15 credits)

9 credits from the Micro-Program in the Foundations of Teaching in Higher and Continuing Education

6 credits from the Micro-Program in the Practice of Teaching in Higher and Continuing Education

Micro-Program in the Foundations of Teaching in Higher and Continuing Education (9 credits)

9 credits:

- TEAC 606 Foundations of Teaching and Learning in Higher and Continuing Education (3.00)
- TEAC 607 Foundations of Course Design in Higher and Continuing Education (3.00)
- TEAC 608 Foundations of Facilitation of Higher and Continuing Education (3.00)

Micro-Program in the Practice of Teaching in Higher and Continuing Education (6 credits)

6 credits:

- TEAC 609 Field Experience in Teaching (6.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
 Program Specific Requirements. Candidates must complete 15 credits, with a 2.70 assessment grade point average (AGPA) based on a minimum of six credits.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding theTime Limits. The expected completion is three terms.

3. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

English Literature PhD

Admission Requirements

- Master's degree in English or equivalent.
- GPA of 3.50 or above from a recognized university.
- Promise as a scholar as demonstrated by letter of intent and submitted writing sample.
- Proposed research that is relevant to the program.
- A feasible research proposal in terms of material resources including faculty supervision.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

In exceptional circumstances, outstanding students who have completed 18 credits of course work in English Literature at the master's level may be admitted into the PhD program before satisfying the remaining master's requirements.

Applicants are assessed by the Department of English's Graduate Committee on the basis of undergraduate and graduate transcripts, letters of recommendation, research ability, and a letter of intent.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the English Courses page for course descriptions.

English Literature PhD (90 credits)

7 credits of Required Courses:
- ENGL 800 Pro-Seminar I: Theory (3.00)
- ENGL 801 Pro-Seminar II: Methodology (3.00)
- ENGL 802 Professional Development Workshops (1.00)

12 credits of Studies Courses, chosen from the following lists, with a minimum of three credits of pre-20th Century courses:
Independent Studies in English Literature
Special Topics in English Literature
Studies in Early English Literature and Medieval Literature
Studies in Renaissance Literature
Studies in Restoration and Eighteenth Century Literature
Studies in Nineteenth Century Literature
Studies in Twentieth Century Literature
Studies in Poetry
Studies in Drama
Studies in Fiction
Studies in the History of Ideas
Studies in Shakespeare
Studies in Canadian Literature
Studies in Post-Colonial Literature
Studies in Literary Criticism
Studies in Selected Areas

6 credits:

- ENGL 890 Thesis Proposal (6.00)

12 credits of Field Examinations:

- ENGL 891 The Major Field Examination I (6.00)
- ENGL 892 The Sub-Field Examination II (6.00)

53 credits:

- ENGL 895 Thesis Research (53.00)

Independent Studies in English Literature

- ENGL 803 Independent Study in English Literature (3.00)
- ENGL 804 Independent Study in English Literature (3.00)

Special Topics in English Literature

- ENGL 601 Special Topics in English Literature (3.00)
- ENGL 602 Special Topics in English Literature (3.00)
- ENGL 603 Special Topics in English Literature (3.00)
- ENGL 604 Special Topics in English Literature (3.00)

Studies in Early English Literature and Medieval Literature

- ENGL 605 Studies in Early English Literature and Medieval Literature (3.00)
- ENGL 606 Studies in Early English Literature and Medieval Literature (3.00)
- ENGL 607 Studies in Early English Literature and Medieval Literature (3.00)
- ENGL 608 Studies in Early English Literature and Medieval Literature (3.00)

Studies in Renaissance Literature

- ENGL 610 Studies in Renaissance Literature (3.00)
- ENGL 611 Studies in Renaissance Literature (3.00)
- ENGL 612 Studies in Renaissance Literature (3.00)

Studies in Restoration and Eighteenth Century Literature

- ENGL 615 Studies in Restoration and Eighteenth Century Literature (3.00)
- ENGL 616 Studies in Restoration and Eighteenth Century Literature (3.00)
- ENGL 619 Studies in Restoration and Eighteenth Century Literature (3.00)

Studies in Nineteenth Century Literature

- ENGL 620 Studies in Nineteenth Century Literature (3.00)
- ENGL 621 Studies in Nineteenth Century Literature (3.00)
- ENGL 622 Studies in Nineteenth Century Literature (3.00)
- ENGL 623 Studies in Nineteenth Century Literature (3.00)
- ENGL 624 Studies in Nineteenth Century Literature (3.00)

Studies in Twentieth Century Literature

- ENGL 625 Studies in Twentieth Century Literature (3.00)
- ENGL 626 Studies in Twentieth Century Literature (3.00)
- ENGL 627 Studies in Twentieth Century Literature (3.00)
- ENGL 628 Studies in Twentieth Century Literature (3.00)
- ENGL 629 Studies in Twentieth Century Literature (3.00)

Studies in Poetry

- ENGL 630 Studies in Poetry (3.00)
- ENGL 631 Studies in Poetry (3.00)

Studies in Drama

- ENGL 635 Studies in Drama (3.00)
- ENGL 636 Studies in Drama (3.00)
- ENGL 637 Studies in Drama (3.00)

Studies in Fiction

- ENGL 640 Studies in Fiction (3.00)
- ENGL 641 Studies in Fiction (3.00)

Studies in the History of Ideas

- ENGL 645 Studies in the History of Ideas (3.00)
- ENGL 646 Studies in the History of Ideas (3.00)
- ENGL 648 Studies in the History of Ideas (3.00)

Studies in Shakespeare

- ENGL 650 Studies in Shakespeare (3.00)
- ENGL 652 Studies in Shakespeare (3.00)

Studies in American Literature

- ENGL 655 Studies in American Literature (3.00)
- ENGL 656 Studies in American Literature (3.00)
- ENGL 657 Studies in American Literature (3.00)
- ENGL 658 Studies in American Literature (3.00)
- ENGL 659 Studies in American Literature (3.00)

Studies in Canadian Literature

- ENGL 660 Studies in Canadian Literature (3.00)
- ENGL 662 Studies in Canadian Literature (3.00)
- ENGL 663 Studies in Canadian Literature (3.00)
- ENGL 664 Studies in Canadian Literature (3.00)

Studies in Post-Colonial Literature

- ENGL 665 Studies in Post-Colonial Literature (3.00)
- ENGL 667 Studies in Post-Colonial Literature (3.00)

Studies in Literary Criticism

- ENGL 668 Studies in Literary Criticism (3.00)
- ENGL 669 Studies in Literary Criticism (3.00)

Studies in Selected Areas

- ENGL 685 Selected Area III (3.00)
- ENGL 687 Selected Area IV (3.00)
- ENGL 688 Selected Area V (3.00)
- ENGL 689 Selected Area VI (3.00)

Additional Degree Requirements

Language Requirement. Students are required to demonstrate reading knowledge of a language other than English, a language of demonstrated relevance to their program of research. Language testing occurs once each term, and students are expected to pass the language requirement by the end of their second year in the program.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence Requirements.** The minimum required residency is six consecutive terms (including summers) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

English MA

Note: Admissions to Option B have been suspended.

Admission Requirements

- The MA program, with the exception of the Creative Writing option, requires an Honours degree or its equivalent in English with a minimum of a B+ (3.30 GPA) average.
- The Creative Writing option requires a major in English Literature or its equivalent with a minimum of a B+ (3.30 GPA) average.
- Portfolio submission, as outlined on the English Department website.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants who lack one or two courses (12 credits or less) towards equivalency of an Honours degree, but who are otherwise well qualified, may be admitted with the provision that they take additional undergraduate courses as part of their master's program. Applicants requiring three or more courses (more than 12 credits) to complete the Honours equivalent will be required to take a qualifying program of prescribed undergraduate courses, and reapply to the master's program after successful completion of this course work.

Applicants should feel free to consult with all members of the English Department about the program. Specific matters should be addressed to the Graduate Program Director or to the Graduate Program Assistant.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the English Courses page for course descriptions.

English MA (45 credits)

45 credits chosen from:
English Literature MA with Thesis (Option A)
English Literature MA with Thesis (Option B)
Creative Writing MA with Thesis (Option C)

English Literature MA with Thesis (Option A)

21 credits of 600-level Courses with a minimum of 6 credits of courses designated by the Graduate Committee as fulfilling the "Period" requirement and a minimum of 3 credits of courses designated as fulfilling the "Theory" requirement.

24 credits:
- ENGL 693 Bibliography (6.00)
- ENGL 694 Research Thesis (18.00)

English Literature MA with Thesis (Option B) (45 credits)

Note:
Admission to this option has been suspended

21 credits, with a minimum of 6 credits of courses designated by the Graduate Committee as fulfilling the "Period" requirement and a minimum of 3 credits of courses designated as fulfilling the "Theory" requirement.

24 credits:
- ENGL 690 Thesis (24.00)

Creative Writing with Thesis (Option C)

12 credits of 600-level Courses chosen from the regular academic course offerings

12 credits of Creative Writing Courses:
- ENGL 670 Seminar in Creative Writing: Prose Fiction, Poetry and Drama (3.00)
- ENGL 671 Seminar in Creative Writing: Prose Fiction, Poetry and Drama (3.00)
- ENGL 672 Seminar in Creative Writing: Prose Fiction, Poetry and Drama (6.00)
- ENGL 673 Seminar in Creative Writing: Prose Fiction, Poetry and Drama (3.00)
- ENGL 674 Seminar in Creative Writing: Prose Fiction, Poetry and Drama (3.00)

Note: ENGL 670 and ENGL 671 are Creative Writing courses. Only six credits of creative writing workshops (from ENGL 672 , ENGL 673 , ENGL 674) may be elected in any year.

21 credits:
- ENGL 692 Creative Writing Thesis (21.00)

Additional Degree Requirements

English Literature MA with Thesis (Option A)

This option gives the student the opportunity to study English literature in a range of periods and subjects. Emphasis rests on the preparation of a thesis. In preparation for the thesis, a fully qualified candidate takes a minimum of twenty-one 600-level course credits. In these courses the student is trained in academic research methods, gains knowledge to interpret literary texts and assess scholarship in particular fields, and applies these skills in graduate research papers. A fully qualified candidate is required to take a minimum of six credits from any courses designated by the Graduate Committee as fulfilling the "Period" requirement, and a minimum of three credits from any courses designated as fulfilling the "Theory" requirement. This option requires the preparation of an annotated bibliography of approximately three thousand words (ENGL 693) preliminary to a research thesis of approximately ten thousand words (ENGL 694). The bibliography requires the approval of the Graduate Committee before a student is permitted to proceed with the research thesis. Both are supervised by a member of the department. The research thesis is assessed by the supervisor and one other member of the department.

English Literature MA with Thesis (Option B)

This option involves course work and intensive research on an original topic, approved by the Graduate Committee. In this option, a fully qualified candidate is required to take a minimum of 21 credits at the 600-level including a minimum of six credits from any courses designated by the Graduate Committee as fulfilling the "Period" requirement, and a minimum of three credits from any courses designated as fulfilling the "Theory" requirement. A candidate electing the thesis option must satisfy the Graduate Committee of the viability of the topic and secure a member of the department to supervise the thesis. The English Department cannot guarantee the availability of a supervisor on every possible topic. The candidate's thesis is orally defended. For specific information concerning thesis proposals a student should consult the departmental guidelines. University regulations regarding the thesis may be found in the thesis section of this calendar. For purposes of registration, this work is designated as ENGL 690 - Thesis.

Creative Writing MA with Thesis (Option C)

To elect this option a candidate must have applied specifically for the Creative Writing option. A fully qualified candidate takes a minimum of 12 600-level credits from the regular academic course offerings, and 12 course credits in creative writing drawn from courses numbered ENGL 670-674 (ENGL 670 and ENGL 671 are Creative Writing courses). Only six credits of creative writing workshop (from ENGL 672,

673 or 674) may be elected in any year. The Graduate Committee must approve a proposal for a creative writing thesis of book length. For purposes of registration, this work is designated as ENGL 692 - Creative Writing Thesis.

Creative Writing Option students may NOT substitute creative writing courses for any of the required 12 course credits of academic credits.

Note: In addition to the regulations governing the examination of master's theses outlined in this calendar, the Department of English has specific procedures for thesis examinations. Students should consult the Graduate Program Director for details.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** All options have a minimum residence requirement of three terms of full-time study or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Littératures de langue française MA

Note: Admissions have been suspended

Conditions d'admission

Pour être admis à la maîtrise en littératures de langue française, la candidate ou le candidat doit être titulaire de l'un des diplômes suivants :

- Baccalauréat spécialisé (ou « Honours ») en littératures de langue française ou dans une discipline connexe, avec une moyenne générale de 3,00 (sur 4,3); ou
- Baccalauréat avec majeure en littératures de langue française ou dans une discipline connexe, avec une moyenne générale de 3,00 (sur 4,3); ou
- Baccalauréat avec une mineure en littératures de langue française couplée à une majeure dans une discipline connexe avec une moyenne générale de 3,00 (sur 4,3). Dans ce cas, quelques cours de propédeutique devront être envisagés.

Conditions d'admission supplémentaires

La demande d'admission doit s'accompagner des pièces suivantes :

1. Les relevés de notes officiels des universités fréquentées.
2. Trois lettres de recommandation.
3. La lettre de présentation.
4. Un curriculum vitae.
5. Un échantillon d'écriture en français.

La sélection des candidatures est effectuée sur la base des éléments suivants :

1. Le dossier universitaire du candidat ou de la candidate.
2. Les réalisations du candidat ou de la candidate.
3. La lettre de présentation.
4. Les lettres de recommandation.
5. Une entrevue qui vérifiera l'intérêt de l'étudiant ou l'étudiante pour ce programme.

Exigences du programme

Tout candidat doit obtenir un minimum de 45 crédits.

Le choix du directeur de mémoire doit idéalement être fait à la fin du premier session d'études pour les étudiants à temps plein, et après trois séminaires pour les étudiants à temps partiel.

Le projet de mémoire doit être déposé au plus tard une session après la fin de la scolarité pour les étudiants à temps plein et à temps partiel.

Le projet de mémoire sera accepté ou refusé. En cas de refus, l'étudiant ou l'étudiante bénéficiera d'un délai de trois mois pour soumettre une version remaniée de son projet.

Structure du programme

Tous les étudiants et étudiantes sont tenus à 15 crédits de séminaires, 6 crédits de présentation de mémoire et 24 crédits de thèse (mémoire ou réalisation médiatique en diffusion littéraire).

Veuillez consulter la page Études françaises, cours pour les descriptions des cours.

Littératures de langue française MA (45 credits)

45 crédits choisis parmi :
Maîtrise en littératures de langue française, avec mémoire (Option A)
Maîtrise en littératures de langue française, avec mémoire sous forme de réalisation médiatique en diffusion littéraire (Option B)

Maîtrise en littératures de langue française, avec mémoire (Option A) (45 credits)

15 crédits de séminaires, avec 6 crédits de Séminaires obligatoires : Littératures de langue française et 9 crédits de Séminaires de domaines généraux Littératures de langue française

6 crédits:
• FLIT 690 Présentation du mémoire (Option A) (6.00)

24 crédits:
• FLIT 692 Mémoire (Option A) (6.00)

Maîtrise en littératures de langue française, avec mémoire sous forme de réalisation médiatique en diffusion littéraire (Option B)

15 crédits de séminaires avec 6 crédits de Séminaires obligatoires : Littératures de langue française et 9 crédits de Séminaires de domaines généraux Littératures de langue française

6 crédits :
• FLIT 691 Présentation du mémoire incluant une réalisation médiatique (Option B) (6.00)

24 crédits pour la réalisation du mémoire sous forme de réalisation médiatique en diffusion littéraire, tel qu'il a été approuvé par le comité des études supérieures:
• FLIT 693 Mémoire incluant une réalisation médiatique (Option B) (6.00)

Séminaires obligatoires : Littératures de langue française

• FLIT 600 Méthodologie (3.00)
• FLIT 601 Théories littéraires (3.00)

Séminaires de domaines généraux

• FLIT 605 Littérature et discours (3.00)
• FLIT 614 Littérature et technologies (3.00)
• FLIT 617 Textes et images (3.00)
• FLIT 619 Littérature et société (3.00)
• FLIT 620 Tutorat en littérature (3.00)
• FLIT 621 Tutorat en littérature (3.00)
• FLIT 622 Littérature, langue et traduction (3.00)
• FLIT 630 Séminaire avancé en littératures francophones (3.00)
• FLIT 640 Séminaire avancé en littérature québécoise (3.00)
• FLIT 650 Séminaire avancé en écritures contemporaines (3.00)
• FLIT 660 Séminaire avancé en littérature française (3.00)

Notes :
FLIT 622 est co-listé avec FTRA 622.

Les séminaires de domaines généraux peuvent être suivis dans un autre département de l'Université Concordia ou dans d'autres universités, avec l'accord du directeur ou de la directrice du programme de deuxième cycle en littérature et celui du département concerné. Pour les deux options, un maximum de trois crédits de séminaires non obligatoires peut être remplacé par une lecture dirigée après l'obtention de la permission du directeur ou de la directrice du 2e cycle de littérature.

Présentation du mémoire et mémoire (Littératures de langue française MA)

- FLIT 690 Présentation du mémoire (Option A) (6.00)
- FLIT 691 Présentation du mémoire incluant une réalisation médiatique (Option B) (6.00)
- FLIT 692 Mémoire (Option A) (6.00)
- FLIT 693 Mémoire incluant une réalisation médiatique (Option B) (6.00)

Exigences du programme supplémentaires

Duré d'études. La durée des études est d'un minimum de trois sessions à temps plein.

Les étudiantes et étudiants à temps plein réaliseront normalement leur cycle complet d'études en deux ans et les étudiantes et étudiants à temps partiel disposeront d'un maximum de cinq années. Le nombre total de crédits est de 45 : 6 crédits de séminaires obligatoires, 9 crédits de séminaires généraux, 6 crédits pour la présentation du projet de mémoire et 24 crédits pour la réalisation du mémoire.

Les étudiantes et étudiants à temps plein suivent normalement trois séminaires par session; les étudiantes et étudiants à temps partiel suivent un ou deux séminaires par session pendant quatre sessions. Le projet de mémoire doit être déposé immédiatement après la fin de la scolarité, pour les étudiants à temps plein, et au maximum deux ans après l'inscription au programme pour les étudiants à temps partiel. Il peut prendre soit la forme d'un mémoire (Option A) soit la forme d'un projet innovateur de diffusion (Option B) choisi par le candidat ou la candidate en fonction de son expérience, de ses études antérieures ou de son intérêt propre.

Rendement académique

Voir la section Academic Standing de l'Annuaire pour la Réglementation universitaire.

Toute note inférieure à C constitue un échec. Obtenir deux C constitue également un échec. Le comité d'études supérieures du département revoit annuellement le dossier de tous les étudiants et étudiantes et peut exiger que ceux et celles dont les résultats ne satisfont pas aux normes du département (moyenne générale de 2,70) se retirent du programme.

Traductologie MA

Programme

La maîtrise en traductologie comporte deux options. L'option A, à visée professionnelle, s'adresse aux étudiantes et aux étudiants qui ont réalisé leurs études antérieures dans une discipline autre que la traduction et offre une formation accélérée dans ce domaine. L'option B, à visée théorique, est axée sur l'étude interdisciplinaire des rapports entre culture, langue et traduction (méthodologie de la recherche, histoire et critique de la traduction) et se concentre tout particulièrement sur les composantes structurelles, systémiques et organisationnelles des processus de traduction.

Exigences du programme

Traductologie (45 credits)

45 crédits choisis parmi:
Maîtrise en traductologie (professionnelle - sans mémoire) Option A
Maîtrise en traductologie (théorique - avec mémoire) Option B

Note: Les étudiantes et les étudiants admis en maîtrise peuvent bénéficier d'une aide financière pendant la durée de leurs études, sous la forme d'assistanats de recherche ou d'enseignement. Ces aides varient selon les années et les étudiantes et étudiants intéressés doivent se faire connaître auprès de la direction du programme une fois admis.

Maîtrise en traductologie (professionnelle - sans mémoire) Option A

Le Département d'études françaises offre un programme de 2e cycle à visée professionnelle : la maîtrise en traductologie, sans mémoire, option A.

But du programme

Cette option offre une formation accélérée en traduction aux étudiantes et aux étudiants qui ont réalisé leurs études antérieures dans une discipline autre que la traduction. Ils deviendront ainsi des langagiers professionnels efficaces et reconnus.

Conditions d'admission

- Les candidates et les candidats devront détenir un baccalauréat ou un diplôme d'études supérieures dans un domaine autre que la traduction et suivront au besoin une propédeutique.
- Les candidates et les candidats devront posséder les compétences linguistiques nécessaires à la traduction (maîtrise de la langue d'arrivée, compréhension fine de la langue de départ), avoir un excellent dossier universitaire (moyenne générale de 3,00 sur 4,30) et démontrer des aptitudes pour la traduction.
- Les candidates et les candidats devront préciser dès l'entrée au programme s'ils travailleront vers le français ou vers l'anglais.

Conditions d'admission supplémentaires

La demande d'admission doit s'accompagner des pièces suivantes :

1. trois lettres de recommandation;
2. une lettre de présentation où la candidate ou le candidat décrit sa formation et son expérience ainsi que ses attentes à l'égard du programme;
3. des relevés de notes officiels de l'université ou des universités fréquentées.

La sélection des candidatures est effectuée sur la base des éléments suivants :

1. le dossier universitaire de la candidate ou du candidat;
2. les lettres de recommandation;
3. un examen d'admission qui sert à vérifier les compétences linguistiques et culturelles de la candidate ou du candidat.

Exigences du programme

Toute étudiante ou tout étudiant doit obtenir un minimum de 45 crédits.

Veuillez consulter la page Études françaises, cours pour les descriptions des cours.

Maîtrise en traductologie (professionnelle - sans mémoire) Option A

3	crédits de séminaire théorique obligatoire : Bloc A : Maîtrise en traductologie Option A
9	crédits de séminaires théoriques à option : Bloc B Maîtrise en traductologie Option A
3	crédits choisi parmi les cours de traductique : Bloc C Maîtrise en traductologie Option A
30	crédits de cours et séminaires pratiques de traduction : Bloc D Maîtrise en traductologie Option A

Bloc A : Maîtrise en traductologie Option A

3 crédits *:*

- FTRA 600 Méthodologie générale de la recherche en traduction (3.00)

Bloc B Maîtrise en traductologie Option A

9 crédits choisis parmi les cours suivants :

- FTRA 601 Courants contemporains en traductologie (3.00)
- FTRA 602 Histoire générale de la traduction (3.00)
- FTRA 603 Contextes socio-politiques de la traduction (3.00)
- FTRA 610 Lecture critique de traductions (3.00)
- FTRA 622 Littérature, langue, traduction (3.00)

Bloc C Maîtrise en traductologie Option A

3 crédits choisis parmi les cours suivants :

- FTRA 636 Informatique et traduction (F/A) (3.00)
- FTRA 638 Initiation au sous-titrage (3.00)
- FTRA 652 Traduction assistée par ordinateur (TAO) et post édition (3.00)
- FTRA 655 Gestion de projets (3.00)
- FTRA 658 Pratique de la localisation (3.00)
- FTRA 668 Web, technologies, traduction : théories et critiques (3.00)

Bloc D Maîtrise en traductologie Option A

6 crédits obligatoires :

- FTRA 611 Terminologie et mondialisation (3.00)

• FTRA 633 Aspects théoriques et pratiques de la terminologie (3.00)

24 crédits obligatoires :

3 crédits : Traduction avancée en sciences humaines et sociales (F) / Advanced translation in social sciences and the humanities (A)

3 crédits : Traduction littéraire avancée (F) / Advanced literary translation (A)

3 crédits : Traduction scientifique et technique du français à l'anglais (F) / Traduction scientifique et technique de l'anglais au français (A)

3 crédits : Traduction commerciale et juridique du français à l'anglais (F) / Traduction commerciale et juridique de l'anglais au français (A)

3 crédits : Révision et correction en traduction (A) / Révision et correction en traduction (F)

3 crédits : Initiation à la traduction générale (A) / Initiation à la traduction générale (F)

3 crédits : Traduction littéraire de l'anglais au français (F) / Traduction littéraire du français à l'anglais (A)

3 crédits : Traduction économique du français à l'anglais (A) / Traduction économique de l'anglais au français (F)

Traduction avancée en sciences humaines et sociales (F) / Advanced translation in social sciences and the humanities (A)

3 crédits choisi parmi:

• FTRA 612 Traduction avancée en sciences humaines et sociales (F) (3.00)

• FTRA 613 Advanced translation in social sciences and the humanities (A) (3.00)

Traduction littéraire avancée (F) / Advanced literary translation (A)

3 crédits choisi parmi:

• FTRA 614 Traduction littéraire avancée (F) (3.00)

• FTRA 615 Advanced literary translation (A) (3.00)

Traduction scientifique et technique du français à l'anglais (F) / Traduction scientifique et technique de l'anglais au français (A)

3 crédits choisi parmi:

• FTRA 623 Traduction scientifique et technique du français à l'anglais (A) (3.00)

• FTRA 624 Traduction scientifique et technique de l'anglais au français (F) (3.00)

Traduction commerciale et juridique du français à l'anglais (F) / Traduction commerciale et juridique de l'anglais au français (A)

3 crédits choisi parmi:

• FTRA 625 Traduction commerciale et juridique du français à l'anglais (A) (3.00)

• FTRA 626 Traduction commerciale et juridique de l'anglais au français (F) (3.00)

Révision et correction en traduction (A) / Révision et correction en traduction (F)

3 crédits choisi parmi:

• FTRA 629 Révision et correction en traduction (A) (3.00)

• FTRA 630 Révision et correction en traduction (F) (3.00)

Initiation à la traduction générale (A) / Initiation à la traduction générale (F)

3 crédits choisi parmi:

- FTRA 631 Initiation à la traduction générale (A) (3.00)
- FTRA 632 Initiation à la traduction générale (F) (3.00)

Traduction littéraire de l'anglais au français (F) / Traduction littéraire du français à l'anglais (A)

3 crédits choisi parmi:

- FTRA 634 Traduction littéraire de l'anglais au français (F) (3.00)
- FTRA 635 Traduction littéraire du français à l'anglais (A) (3.00)

Traduction économique du français à l'anglais (A) / Traduction économique de l'anglais au français (F)

3 crédits choisi parmi:

- FTRA 647 Traduction économique du français à l'anglais (A) (3.00)
- FTRA 648 Traduction économique de l'anglais au français (F) (3.00)

Exigences du programme supplémentaires

Durée des études. La durée des études pour les étudiantes et étudiants à temps plein est d'un minimum de trois sessions et d'un maximum de neuf sessions à partir de la date d'inscription. Pour les étudiantes et étudiants à temps partiel, le maximum est de quinze sessions.

Rendement académique

Voir la section Academic Standing de l'Annuaire pour la Réglementation universitaire.

Toute note inférieure à *C* représente un échec. Le comité des études supérieures du Département revoit le dossier de chaque étudiante et de chaque étudiant tous les ans et peut exiger que celles et ceux dont les résultats ne satisfont pas aux normes du Département (moyenne générale de 2,70) se retirent du programme.

Maîtrise en traductologie (théorique - avec mémoire) Option B

Le Département d'études françaises offre un programme de 2e cycle à visée théorique conduisant au doctorat : la maîtrise en traductologie, avec mémoire option B.

But du programme

Cette option offre une formation poussée favorisant la réflexion et l'acquisition de connaissances de pointe en traductologie aux étudiantes et aux étudiants qui ont réalisé leurs études antérieures en traduction ou dans une discipline proche de la traduction. Ces étudiants peuvent ainsi devenir des langagiers professionnels et poursuivre leurs études au doctorat.

Conditions d'admission

- Les candidates et les candidats devront détenir un baccalauréat spécialisé (ou « Honours ») en traduction, un diplôme d'études supérieures en traduction, ou encore un baccalauréat ou un diplôme d'études supérieures dans un domaine pertinent à la traduction.
- Ils devront posséder les compétences linguistiques nécessaires à la traduction (maîtrise de la langue d'arrivée, compréhension fine de la langue de départ), avoir un excellent dossier universitaire (moyenne générale de 3,00 sur 4,30) et démontrer des aptitudes pour la traduction.
- La direction du programme pourra exiger qu'une candidate ou qu'un candidat suive au besoin une propédeutique.

Conditions d'admission supplémentaires

La demande d'admission doit s'accompagner des pièces suivantes :

1. trois lettres de recommandation;
2. une lettre de présentation où la candidate ou le candidat décrit sa formation et son expérience dans les domaines langagiers ainsi que ses attentes à l'égard du programme;
3. des relevés de notes officiels de l'université ou des universités fréquentées.

La sélection des candidatures est effectuée sur la base des éléments suivants :

1. le dossier universitaire de la candidate ou du candidat;
2. les lettres de recommandation;
3. un examen d'admission qui vérifie les compétences linguistiques et culturelles de la candidate ou du candidat.

Exigences du programme

Toute étudiante ou tout étudiant doit obtenir un minimum de 45 crédits.

Veuillez consulter la page Études françaises, cours pour les descriptions des cours.

Maîtrise en traductologie (théorique - avec mémoire) Option B (45 credits)

9	crédits de Séminaires obligatoires : Maîtrise en traductologie Option B
6	crédits de Séminaires au choix : Maîtrise en traductologie Option B
6	crédits: • FTRA 686 Projet de mémoire (6.00)
24	crédits: • FTRA 692 Mémoire (24.00)

Séminaires obligatoires : Maîtrise en traductologie Option B (9 credits)

- FTRA 600 Méthodologie générale de la recherche en traduction (3.00)
- FTRA 601 Courants contemporains en traductologie (3.00)
- FTRA 603 Contextes socio-politiques de la traduction (3.00)

Séminaires au choix : Maîtrise en traductologie Option B (6 credits)

6 crédits choisis parmi:

- FTRA 603 Contextes socio-politiques de la traduction (3.00)
- FTRA 610 Lecture critique de traductions (3.00)
- FTRA 612 Traduction avancée en sciences humaines et sociales (F) (3.00)
- FTRA 613 Advanced translation in social sciences and the humanities (A) (3.00)
- FTRA 614 Traduction littéraire avancée (F) (3.00)
- FTRA 615 Advanced literary translation (A) (3.00)
- FTRA 622 Littérature, langue, traduction (3.00)
- FTRA 680 Tutorat en littérature (F) (3.00)
- FTRA 681 Tutorial in Literature (A) (3.00)

- FTRA 682 Tutorat en traduction (F) (3.00)
- FTRA 683 Tutorial in translation (A) (3.00)
- FTRA 684 Tutorat en linguistique (F) (3.00)
- FTRA 685 Tutorial in Linguistics (A) (3.00)
- FTRA 698 Étude d’un sujet particulier / Special Topics (3.00)

Projet de mémoire et mémoire : Maîtrise en traductologie Option B

30 crédits:

- FTRA 686 Projet de mémoire (6.00)
- FTRA 692 Mémoire (24.00)

Exigences du programme supplémentaires

Durée des études. La durée des études pour les étudiantes et étudiants à temps plein est d’un minimum de trois sessions et d’un maximum de neuf sessions à partir de la date d’inscription. Pour les étudiantes et étudiants à temps partiel, le maximum est de quinze sessions.

Rendement académique

Voir la section Academic Standing de l'Annuaire pour la Réglementation universitaire.
Toute note inférieure à *C* représente un échec. Le comité des études supérieures du Département revoit le dossier de chaque étudiante et de chaque étudiant tous les ans et peut exiger que celles et ceux dont les résultats ne satisfont pas aux normes du Département (moyenne générale de 2,70) se retirent du programme.

Traduction, diplôme

Conditions d'admission

- Baccalauréat ou diplôme équivalent dans un domaine autre que la traduction. Dans tous les cas, la moyenne générale obtenue sera d'au moins 2,70 (sur 4,30).
- La sélection des candidatures est effectuée sur la base des documents suivants : un examen écrit, trois lettres de recommandation, le dossier universitaire, une lettre de présentation et, au besoin, une entrevue.

Exigences du programme

Toute étudiante ou tout étudiant doit obtenir 33 crédits.

Veuillez consulter la page Études françaises, cours pour les descriptions des cours.

Traduction, diplôme (33 credits)

	Cours obligatoires
3	crédits choisis parmi: • FTRA 501 Traduction littéraire du français à l'anglais (A) (3.00) • FTRA 504 Traduction littéraire de l'anglais au français (F) (3.00)
9	crédits: • FTRA 532 Initiation à la traduction générale (F) (3.00) • FTRA 533 Aspects théoriques et pratiques de la terminologie (3.00) • FTRA 536 Informatique et traduction (F/A) (3.00)
3	crédits choisis parmi: • FTRA 500 Méthodologie générale de la recherche en traduction (3.00) • FTRA 539 Courants contemporains en traductologie (3.00) • FTRA 540 Lecture critique de traductions (3.00) • FTRA 549 Sociologie de la traduction littéraire (3.00)
3	crédits choisis parmi: • FTRA 529 Révision et correction en traduction (A) (3.00) • FTRA 530 Révision et correction en traduction (F) (3.00)
	Cours en option
15	crédits de cours en option, choisis parmi les cours suivants: • FRAA 523 Rédaction II (3.00) • FTRA 513 Traduction scientifique et technique du français à l'anglais (A) (3.00) • FTRA 514 Traduction scientifique et technique de l'anglais au français (F) (3.00) • FTRA 515 Traduction commerciale et juridique du français à l'anglais (A) (3.00) • FTRA 516 Traduction commerciale et juridique de l'anglais au français (F) (3.00) • FTRA 517 Stage de formation du français à l'anglais I (A) (3.00) • FTRA 519 Stage de formation du français à l'anglais II (A) (3.00) • FTRA 520 Stage de formation (F) (6.00) • FTRA 521 Stage de formation (A) (6.00) • FTRA 522 Stage de formation de l'anglais au français I (F) (3.00) • FTRA 526 Stage de formation de l'anglais au français II (F) (3.00) • FTRA 527 Travaux dirigés (A) (3.00) • FTRA 528 Travaux dirigés (F) (3.00) • FTRA 534 Terminologie et mondialisation (3.00)

- FTRA 538 Initiation au sous-titrage (3.00)
- FTRA 542 Traduction avancée en sciences humaines et sociales (F) (3.00)
- FTRA 543 Advanced Translation in Social Sciences and the Humanities (A) (3.00)
- FTRA 544 Traduction littéraire avancée (F) (3.00)
- FTRA 545 Advanced Literary Translation (A) (3.00)
- FTRA 547 Traduction économique du français à l'anglais (A) (3.00)
- FTRA 548 Traduction économique de l'anglais au français (F) (3.00)
- FTRA 552 Traduction assistée par ordinateur (TAO) et post édition (3.00)
- FTRA 553 Contextes socio-politiques de la traduction (3.00)
- FTRA 555 Gestion de projets (3.00)
- FTRA 558 Pratique de la localisation (3.00)
- FTRA 598 Étude avancée d'un sujet particulier (3.00)

Exigences du programme supplémentaires

Durée des études. Les 33 crédits du programme peuvent être effectués en une année (3 sessions) ou à temps partiel. Pour être admissible à un stage de formation, l'étudiante ou l'étudiant doit avoir suivi 12 crédits en traduction pragmatique, 3 crédits en terminologie et avoir obtenu une moyenne générale cumulative d'au moins 3,30 soit B+.

Rendement académique

Voir la section Academic Standing de l'Annuaire pour la Réglementation universitaire.
Toute note inférieure à *C* constitue un échec. Obtenir deux *C* constitue également un échec. Le comité d'études supérieures du département revoit le dossier de chaque étudiante et de chaque étudiant tous les ans et peut exiger que ceux et celles dont les résultats ne satisfont pas aux normes du département (moyenne générale de 2,70 sur 4,30) se retirent du programme.

Microprogramme en didactique et linguistique pour l'enseignement du français langue seconde

Conditions d'admission

- possèdent un baccalauréat en éducation, avec une moyenne générale de 3,00 (sur 4,3), et souhaitent obtenir une formation en enseignement du FLS soit pour perfectionner leur pratique, soit pour entreprendre une réflexion théorique ; ou
- possèdent un baccalauréat dans un autre domaine (linguistique, littérature, traduction, études françaises ou autres), avec une moyenne générale de 3,00 (sur 4,3), et cherchent soit une formation spécialisée menant au marché du travail, soit une formation plus théorique menant au programme de maîtrise.

Conditions d'admission supplémentaires

Lors de la soumission du formulaire de demande d'admission de l'Université Concordia, le candidat doit:

- déposer les relevés de notes officiels des universités fréquentées ;
- soumettre son curriculum vitae et une lettre d'intention ;
- posséder une excellente connaissance du français et une maîtrise suffisante de l'anglais. Il est possible qu'un test de français soit administré aux étudiants ayant effectué leurs études dans une université non francophone. Les demandes sont examinées par le directeur du programme, et les candidats sélectionnés peuvent être interviewés avant qu'ils ne soient officiellement acceptés.

Détenir un baccalauréat ne donne pas automatiquement droit à l'admission. Chaque demande est étudiée individuellement par le Comité des études de 2e cycle du Département.

Exigences du programme

Un candidat qualifié est tenu de compléter un minimum de 15 crédits, y compris un stage d'observation.

Veuillez consulter la page Études françaises, cours pour les descriptions des cours.

Microprogramme en didactique et linguistique pour l'enseignement du français langue seconde, certificat (15 credits)

15 Crédits:

- FRAA 500 Didactique du français langue étrangère et seconde (3.00)
- FRAA 501 Théories linguistiques pour l'apprentissage et l'enseignement des langues (3.00)
- FRAA 502 Technologies de l'information et de la communication (TIC) et enseignement du FLS (3.00)
- FRAA 510 Stage d'observation (3.00)
- FRAA 522 Questions actuelles en linguistique française (3.00)

L'étudiant peut, avec une permission spéciale du directeur du programme et du Département d'éducation, remplacer un cours du microprogramme par un cours du programme de maîtrise en Applied Linguistics du Département d'éducation, soit FRAA 522 par APLI 610 (Teaching and Learning Second Language Vocabulary), soit FRAA 502 par APLI 644 (Technology in Language Learning).

Nota : Le microprogramme ne donne pas accès à une autorisation d'enseigner au Québec. En revanche, il permettra aux étudiants de compléter leur champ de compétence par une formation à portée didactique.

Exigences du programme supplémentaires

Durée des études. La durée des études pour les étudiants à temps plein est de deux sessions débutant à l'automne. Pour les étudiants à temps partiel, le maximum est de quatre sessions débutant à l'automne.

Rendement académique

Voir la section Academic Standing de l'Annuaire pour la Réglementation universitaire.

Technologies de la traduction, certificat

Conditions d'admission

- Détenir un BA en traduction, spécialisation ou majeure ; un DESS en traduction ; une MA en traductologie ; un BA dans une autre discipline avec expérience en traduction ; ou une MA dans une autre discipline avec expérience en traduction.

Conditions d'admission supplémentaires

Il est aussi possible d'exiger une propédeutique à tout candidat qui n'a pas de base ou d'expérience en traduction.

La sélection des candidatures est effectuée sur la base d'une étude du dossier et lettre de présentation.

Exigences du programme

Veuillez consulter la page Études françaises, cours pour les descriptions des cours.

Technologies de la traduction, certificat (15 credits)

12 crédits des cours obligatoires :
- FTRA 536 Informatique et traduction (F/A) (3.00)
- FTRA 552 Traduction assistée par ordinateur (TAO) et post édition (3.00)
- FTRA 558 Pratique de la localisation (3.00)
- FTRA 568 Web, technologies, traduction : théories et critiques (3.00)

3 crédits des cours en option:
- FRAA 532 Écriture pour le Web (3.00)
- FTRA 538 Initiation au sous-titrage (3.00)
- FTRA 555 Gestion de projets (3.00)
- FTRA 556 Programmation en localisation (3.00)
- FTRA 598 Étude avancée d'un sujet particulier (3.00)

Note:
- FTRA 538 Initiation au sous-titrage (3.00)

est offert aux deux ans.

Exigences du programme supplémentaires

Les 15 crédits au programme peuvent être effectués à temps plein (trois sessions) ou à temps partiel (neuf sessions maximum).

Rendement académique

Voir la section Academic Standing de l'Annuaire pour la Réglementation universitaire.

L'étudiant doit obtenir 15 crédits. Toute note inférieure à C constitue un échec. L'obtention de deux C peut conduire à l'expulsion du programme.

Geography, Urban and Environmental Studies PhD

Admission Requirements

- MA or MSc in Geography, Urban Planning, Environmental Science, or a related field of study from a recognized university.
- Admission is contingent on the availability of an appropriate faculty member in the Department to serve as supervisor.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants are selected on the basis of a sound academic record, strong letters of recommendation, and a convincing statement of purpose which clearly describes their academic interest in the program and intended area of research. In addition, admission is contingent on the availability of an appropriate faculty member in the Department to serve as supervisor.

Upon recommendation by full-time members of the faculty of the Department of Geography, Planning and Environment, students registered in the Geography, Urban and Environmental Studies MSC at Concordia University and who have shown themselves to be outstanding through performance in research may apply for permission to proceed directly to doctoral studies. Students transferring from the MSc program will be required to complete 90 credits in addition to the MSc required courses HENV 605 or HENV 610 plus HENV 615.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Geography, Planning and Environment Courses page for course descriptions.

Geography, Urban Environmental Studies PhD (90 credits)

9	credits of Required Courses: • HENV 801 Pedagogical Training (3.00) • HENV 802 Experiential Learning (3.00) • HENV 805 Research Proposal Seminar (3.00)
6	credits of Elective Courses: • HENV 605 Advanced Qualitative Research Methods (3.00) • HENV 660 Climate Change and Sustainability (3.00) • HENV 665 Special Topics Seminar (3.00) • HENV 675 Community-Based Conservation (3.00) • HENV 680 Advanced Seminar in Environmental Science (3.00) • HENV 690 Seminar in Social and Cultural Geography (3.00) • HENV 610 Advanced Quantitative Research Methods (3.00) • HENV 620 Sustainable Transportation (3.00) • HENV 625 Sustainable Resource Management (3.00) • HENV 630 Theories of Society and Space (3.00) • HENV 635 Spatial Analysis (3.00) • HENV 640 (Re)shaping the City (3.00) • HENV 645 Behaviour and the Urban Environment (3.00) • HENV 650 The Political Economy of the City (3.00) • HENV 655 Environmental Modelling (3.00) • HENV 670 Environmental Governance (3.00)
3	credits: • HENV 810 Thesis Proposal (3.00)

6	credits: • HENV 885 Comprehensive Exam (6.00)
66	credits: • HENV 895 Research and Thesis (66.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations. Program Specific Requirements. Students must obtain an assessment grade point average (AGPA) of 3.00 based on a minimum of 6 credits.
2. **Residence.** The minimum period of residence is two years (six terms) of full-time graduate study beyond the master's degree or three years (nine terms) of full-time graduate study (or the equivalent in part-time study) beyond the bachelor's degree for those students who are permitted to enrol for doctoral studies without completing a master's degree.
3. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits. The expected time to completion for this program is between three and four years.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Environmental Assessment MEnv

Admission Requirements

- Bachelor's degree in an appropriate discipline in Arts or Science from a recognized university with a minimum GPA of 3.30 out of 4.30.
- Strong language skills in English and/or French.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants are selected on the basis of a sound undergraduate academic record and strong language skills in English and/or French that allow them to secure an internship, which is a program requirement. Students who lack appropriate preparation in Social Sciences, Geographic Information Systems, Physical Geography or Statistics are required to take preparatory courses such as GEOG 355 Resource Analysis and Management, a 300-level physical geography course; GEOG 362 Statistical Methods; or GEOG 363 Geographic Information Systems.

Students admitted to the Diploma in Environmental Assessment (DEA) may subsequently apply, in a future admission cycle, to the Master of Environment (MEnv), if they have maintained a minimum cumulative GPA of 3.30. A new application is required, with three letters of reference from current or recent professors. Courses taken in the Diploma with a grade of B+ or better may be transferred to the MEnv degree after admission. The
Graduate Committee assesses the new applications with the other applications for the cycle.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Geography, Planning and Environment Courses page for course descriptions.

Environmental Assessment MEnv (45 credits)

21 credits of Compulsory Courses:
- ENVS 601 EA: Concepts, Principles and Practice (6.00)
- ENVS 608 Getting Ready for the EA Internship (3.00)
- ENVS 652 Data Collection and Analysis for EA (3.00)
- ENVS 653 Geographical Information Systems for EA (3.00)
- ENVS 664 Field Course in EA (3.00)
- ENVS 668 Indigenous Peoples and Environmental Assessment (3.00)

6 credits of Elective Courses:
- ENVS 604 Environmental Law and Policy (3.00)
- ENVS 605 Environmental Standards (3.00)
- ENVS 620 Advanced Topics in Environmental Assessment (3.00)
- GEOG 620 Special Topics in Geography (3.00)
- HENV 610 Advanced Quantitative Research Methods (3.00)
- HENV 625 Sustainable Resource Management (3.00)
- HENV 655 Environmental Modelling (3.00)
- HENV 660 Climate Change and Sustainability (3.00)
- HENV 670 Environmental Governance (3.00)
- HENV 675 Community-Based Conservation (3.00)
- HENV 680 Advanced Seminar in Environmental Science (3.00)

18	credits: • ENVS 697 Internship in Environmental Assessment (9.00) • ENVS 698 Internship Report (9.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum period of residence is two terms of full-time study or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Geography, Urban and Environmental Studies MSc

Admission Requirements

- A minimum GPA of 3.30 in a BA or BSc in Geography, Planning, or Environmental Science, or an equivalent degree in a related field of study from a recognized university.
- Admission is contingent on the availability of an appropriate faculty member in the Department to serve as supervisor.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants are selected on the basis of a sound undergraduate academic record, strong letters of recommendation, and a convincing statement of purpose which clearly describes their academic interest in the program and intended area of research. In addition, admission is contingent on the availability of an appropriate faculty member in the Department to serve as supervisor. Some applicants with deficiencies in their undergraduate preparation may be required to take a qualifying program. Others may be required to complete certain prerequisite courses in addition to the regular graduate program. Some applicants with deficiencies in their undergraduate preparation may be required to take a qualifying program. Others may be required to complete certain prerequisite courses in addition to the regular graduate program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

For course descriptions, please see the Geography, Planning and Environment Courses page for course descriptions.

Geography, Urban and Environmental Studies MSC (45 credits)

9	credits of Required Courses
3	credits chosen from: • HENV 605 Advanced Qualitative Research Methods (3.00) • HENV 610 Advanced Quantitative Research Methods (3.00)
6	credits: • HENV 615 Research Proposal Seminar (3.00) • HENV 685 Thesis Proposal (3.00)
6	credits of Elective Courses chosen from: • GEOG 620 Special Topics in Geography (3.00) • GEOG 625 Directed Studies (3.00) • HENV 620 Sustainable Transportation (3.00) • HENV 625 Sustainable Resource Management (3.00) • HENV 630 Theories of Society and Space (3.00) • HENV 635 Spatial Analysis (3.00) • HENV 640 (Re)shaping the City (3.00) • HENV 645 Behaviour and the Urban Environment (3.00) • HENV 650 The Political Economy of the City (3.00) • HENV 655 Environmental Modelling (3.00) • HENV 660 Climate Change and Sustainability (3.00) • HENV 665 Special Topics Seminar (3.00) • HENV 670 Environmental Governance (3.00) • HENV 675 Community-Based Conservation (3.00)

	• HENV 680 Advanced Seminar in Environmental Science (3.00) • HENV 690 Seminar in Social and Cultural Geography (3.00)
30	credits: • HENV 695 Thesis (30.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (three semesters) of full-time graduate study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Environmental Assessment Graduate Diploma

Admission Requirements

- Bachelor's degree in an appropriate discipline in Arts or Science.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Students who lack appropriate Ecology, or Geographic Information Systems, Physical Geography or Statistics are required to take preparatory courses such as BIOL 205, Introduction to Sustainability; a 300-level physical geography course; GEOG 362, Statistical Methods or GEOG 363, Geographic Information Systems. Those lacking a social science background may be required to take GEOG 355, Resource Analysis and Management, or a similar course.

Students admitted to the Diploma in Environmental Assessment (DEA) may subsequently apply, in a future admission cycle, to the Master of Environment (MEnv), if they have maintained a minimum CGPA of 3.30. A new application is required, with three letters of reference from current or recent professors. Courses taken in the Diploma with a grade of B+ or better may be transferred to the MEnv degree after admission. The Graduate Committee assesses the new applications with the other applications for the cycle.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Geography, Planning and Environment Courses page for course descriptions.

Environmental Assessment Graduate Diploma (30 credits)

15	credits of Compulsory Courses: • ENVS 601 EA: Concepts, Principles and Practice (6.00) • ENVS 652 Data Collection and Analysis for EA (3.00) • ENVS 653 Geographical Information Systems for EA (3.00) • ENVS 668 Indigenous Peoples and Environmental Assessment (3.00)
15	credits of Elective Courses chosen from: • ENVS 604 Environmental Law and Policy (3.00) • ENVS 605 Environmental Standards (3.00) • ENVS 620 Advanced Topics in Environmental Assessment (3.00) • ENVS 664 Field Course in EA (3.00) • GEOG 607 GEOG 607 Indigenous Peoples and the Environment (3.00) • GEOG 620 Special Topics in Geography (3.00) • HENV 610 Advanced Quantitative Research Methods (3.00) • HENV 625 Sustainable Resource Management (3.00) • HENV 655 Environmental Modelling (3.00) • HENV 660 Climate Change and Sustainability (3.00) • HENV 670 Environmental Governance (3.00) • HENV 675 Community-Based Conservation (3.00) • HENV 680 Advanced Seminar in Environmental Science (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic

Regulations.

2. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits.
3. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Health, Kinesiology, and Applied Physiology PhD

Admission Requirements

- Research MSc in science (e.g., Exercise Science, Kinesiology, Physiology, Biology, Chemistry and Biochemistry, Psychology, or Physics) from a recognized university.
- An established publication record.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicant selection is based on a superior academic record at the undergraduate and master's level, a detailed and convincing statement of purpose that clearly describes their academic interest in the program, and strong letters of recommendation. In addition, Admission is contingent on the availability of an appropriate faculty member in the Department to serve as supervisor. Before final admission, applicants are required to find a faculty member to supervise their work.

Applicants with a BSc Honours and published results are also considered. Those applicants may be required to complete additional courses. Upon recommendation by full-time faculty members of the Department of Health, Kinesiology and Applied Physiology, students registered in the MSc in Exercise Science at Concordia University who have completed 12 credits from the MSc program and who have shown themselves to be outstanding through performance in research may apply for permission to proceed directly to doctoral studies without submitting a master's thesis (fast-tracking).

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Health, Kinesiology, and Applied Physiology Courses page for course descriptions.

Health and Exercise Science PhD (90 credits)

6	credits of Required Courses: • HEXS 801 Scientific Communication and Pedagogy in Health and Exercise Science (3.00) • HEXS 820 Special Topics in Health and Exercise Science (3.00)
6	credits of Electives Courses chosen from: • HEXS 810 Advanced Topics in Health and Exercise Science: Physiology Module (3.00) • HEXS 811 Advanced Topics in Health and Exercise Science: Intervention Module (3.00) • HEXS 812 Advanced Topics in Health and Exercise Science: Population Health Module (3.00)
6	credits: • HEXS 850 Comprehensive Exam in Health and Exercise Science (6.00)
3	credits: • HEXS 851 Research Proposal in Health and Exercise Science (3.00)
69	credits: • HEXS 890 Research and Thesis in Health and Exercise Science (69.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations. Program Specific Requirements. Students must obtain an assessment grade point average (AGPA) of 3.00 based on a minimum of 6 credits.

2. **Residence.** The minimum residence requirement is two years (six terms) of full-time study beyond the master's degree, or three years (nine terms) of full-time study beyond the bachelor's degree.
3. **Time Limit.** All work for the doctoral degree must be completed by the end of the fourth calendar year following the year of admission to candidacy, defined as successful completion of the Comprehensive Exam in Health and Exercise Science (HEXS 850) and the Research Proposal in Health and Exercise Science (HEXS 851). Please refer to the Academic Regulations for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of 3.00.

Health, Kinesiology, and Applied Physiology MSc

Admission Requirements

- BSc in Exercise Science or related field of study, which includes Kinesiology, Physiology, Psychology, or Biology.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

If an applicant has a degree in another area, their academic record is examined to determine if a core deficiency exists in the student's previous undergraduate background, otherwise qualified candidates may be required to take up to 12 undergraduate credits.

Applicants are selected on the basis of past academic record, letters of recommendation and relevance of proposed research to the expertise of the department. Enrolment in the Master's program is limited in part by the availability of research supervisors.

For certain kinds of research, a professional certification (e.g., CATA, FKQ, CSEP, or certification in other health related disciplines) could be an asset for acceptance into the program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Health, Kinesiology, and Applied Physiology Courses page for course descriptions.

Health and Exercise Science MSc (45 credits)

12	credits of coursework: • EXCI 610 Statistics and Research Design (3.00) • EXCI 612 Laboratory Techniques (3.00) • EXCI 624 Special Topics Seminar (3.00) • EXCI 626 Thesis Proposal (3.00)
33	Thesis (one of the following courses): • EXCI 670 Thesis (33.00) • EXCI 680 Thesis (Athletic Therapy) (33.00) • EXCI 690 Thesis (Clinical Exercise Physiology) (33.00)

Additional Degree Requirements

In addition to a written final thesis, a public oral examination is conducted to test the student's ability to defend the thesis.

Year I
Fall (6 credits): EXCI 610 (3 credits), EXCI 624 (3 credits)
Winter (6 credits): EXCI 612 (3 credits), EXCI 626 (3 credits)

Year II
33 credits: EXCI 670 (33 credits) or EXCI 680 (33 credits) or EXCI 690 (33 credits)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations. Program Specific Requirements. Students must obtain an assessment grade point average (AGPA) of 2.70 based on a minimum of 6 credits.

2. **Residence.** The minimum residence requirement is one year (three terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Students are encouraged to complete the program within 2 years. Those who do not complete the MSc program within two years must submit a formal request for an extension to the Graduate Program Director before they can maintain their registration in the program. Students who exceed a two-year time period may not be guaranteed funding. Part-time students may apply to the program based on the availability of faculty supervisors. It is recommended that part-time students complete the degree within 5 years. Please refer to the Academic Regulations for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.
5. **Progress Report.** Each student's progress is formally evaluated by the student's thesis supervisor every six months and a report submitted to the Graduate Program Director.

History PhD

Admission Requirements

- MA degree in History, with high standing, from a recognized university.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirement

Applicants should understand that admission is contingent on a superior academic record, strong references, and a convincing statement of purpose which clearly describes their professional goals and intended area of research. In addition, admission is contingent on the availability of an appropriate faculty member in the Department of History to serve as supervisor.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the History Courses page for course descriptions.

History PhD (90 credits)

12	credits of Required Courses: • HIST 889 Doctoral Seminar (6.00) • HIST 878 Comprehensive Major Field Tutorial (6.00)
6	credits chosen from two 3-credit reading courses at the 800 level in the student's minor comprehensive field.
12	credits: • HIST 880 Comprehensive Examinations (12.00)
6	credits: • HIST 885 PhD Thesis Proposal and Colloquium (6.00)
54	credits: • HIST 890 Thesis Research (54.00)

Additional Degree Requirements

Courses. (18 credits). During the first two years of their program, doctoral students must register for HIST 889.

Comprehensive Examinations. (12 credits). Early in their first term in the program, and in consultation with the GPD, new PhD students form an advisory committee of three faculty members to assist in the selection and preparation of comprehensive fields. In the first year of their program, students take reading courses with the supervisors of each of the three fields, which prepares the students to complete the full requirements of each field's preparation over the following terms. The examinations are normally scheduled by the end of the fourth term (or fall of the second year) of the student's program. Please see the course description for HIST 890 for further detail.

PhD Thesis Proposal Preparation and Colloquium. Following the successful completion of the comprehensive exams, students prepare a written thesis proposal for the approval of the internal members of their thesis committee. Please see the course description for HIST 885 for detail.

Thesis. (54 credits). Doctoral students must submit a thesis based on their research and defend it in an oral examination. Please see the course description for HIST 890 for detail.

Language. Doctoral candidates are required to demonstrate their ability to read and translate historical material in one modern language

other than English. In addition, students may elect, or may be required, to demonstrate competence in a second language. Language examinations, which are normally given twice a year, are administered by the department. Dictionaries are not allowed in writing the exam.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum period of residence is six terms (including summer terms) of full-time graduate study beyond the master's or magisteriate degree, or nine terms of full-time graduate study beyond the bachelor's degree for those students who are permitted to enrol for doctoral studies without a master's or magisteriate degree, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

History MA

Admission Requirements

- Honours degree in history or its equivalent.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants should understand that admission is contingent on a sound undergraduate academic record, strong letters of reference, and a convincing statement of purpose which clearly describes their academic interest in the program and intended area of research. In addition, admission is contingent on the availability of an appropriate faculty member in the Department of History to serve as supervisor. Some applicants with deficiencies in their undergraduate preparation may be admitted into a qualifying year program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the History Courses page for course descriptions.

History MA (45 credits)

6	credits of Required Courses: • HIST 600 The Nature of Historical Knowledge (3.00) • HIST 601 Historical Research Methods (3.00)
9	credits chosen from History MA Electives
30	• HIST 685 MA Thesis (30.00)credits chosen from

History MA Electives

- HIST 610 Selected Topics in European History (3.00)
- HIST 620 Selected Topics in Canadian History (3.00)
- HIST 630 Selected Topics in US History (3.00)
- HIST 634 Selected Topics in Latin American and Caribbean History (3.00)
- HIST 638 Selected Topics in Asian History (3.00)
- HIST 642 Selected Topics in Middle Eastern History (3.00)
- HIST 646 Selected Topics in African History (3.00)
- HIST 650 Selected Topics in the History of Genocide and Human Rights (3.00)
- HIST 660 Selected Topics in the History of Gender and Sexuality (3.00)
- HIST 665 Selected Topics in Public History (3.00)
- HIST 670 Selected Topics in History (3.00)
- HIST 679 Tutorial in a Selected Area of History (3.00)

Additional Degree Requirements

Courses. All students must take 15 credits of 600-level courses including HIST 600 and HIST 601. Students are normally encouraged to incorporate breadth in their course selection. In exceptional cases students may, with permission of the GPD, do three credits of course work at an equivalent level in another discipline.

Residence. The minimum residence requirement is one year (three terms) of full-time study, or the equivalent in part-time study.

Language. All MA students must demonstrate their ability to read and translate historical material in an acceptable language other than English. Language examinations, which are normally given twice a year, are administered by the department. In addition, a reading knowledge of French may be required in some seminars.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits.
3. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Humanities PhD

Admission Requirements

- MA or MFA with high standing from a recognized university.
- Portfolio (for research-creation applicants).
- Research or research-creation proposal.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

The Humanities Program Committee reviews the required documents to determine whether a) the applicant's project is truly interdisciplinary and falls within the scope of available faculty and facilities at Concordia, and b) the applicant's record indicates that they are likely to excel in a demanding program that requires rigorous engagement in more than one discipline.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Humanities Courses page for course descriptions.

Humanities PhD (90 credits)

6	credits of Required Courses : • HUMA 888 Seminar in Interdisciplinary Studies I (3.00) • HUMA 889 Seminar in Interdisciplinary Studies II (3.00)
12	credits of Elective Courses chosen from graduate courses at the 600 level or higher offered by departments in areas relevant to the student's program of study: • HUMA 884 Directed Studies (3.00) • HUMA 887 Advanced Seminar in Special Topics in Interdisciplinary Studies (3.00)
9	credits of Comprehensive Examinations: • HUMA 891 Comprehensive Examination Major Field (3.00)HUMA 893 • HUMA 892 Comprehensive Examination Minor Field I (3.00)
6	credits: HUMA 894
57	credits: HUMA 895

Additional Degree Requirements

Fields of Study. Students in the Humanities PhD program identify the three fields that inform their interdisciplinary project: a major field and two minor fields. A "field" is defined as a recognizable and coherent segment ofa discipline, and in some instances may itself be interdisciplinary.

Advisory Committee. Prior to admission into the program, applicants form an advisory committee composed of three faculty members – a major field supervisor and two minor field advisors – chosen from faculty members in departments that correspond to the three fields informing the student's interdisciplinary project. In consultation with the student, the advisory committee determines the student's program of study. Where the need for access to such resources as equipment, materials, or space arises for applicants seeking to pursue research-creation projects, they must discuss such needs with their prospective supervisor at the time of application.

Courses. Students are required to take two 3-credit core seminars in their first year: HUMA 888 and HUMA 889 . The remaining 12 elective course credits are chosen in consultation with the student's advisory committee. The following may be used as elective courses: graduate courses at the 600 level or higher offered by departments in areas relevant to the student's program of study; 3-credit directed study courses; may also include HUMA 887. A directed study course provides students with the opportunity to pursue advanced and focused work with individual faculty members in the fields that constitute the students' program of study. Directed study courses (3 credits) are designated HUMA 884 followed by the course topic.

Language Requirement. Prior to submission of their thesis, doctoral candidates are required to demonstrate an ability to read and translate scholarly material in at least one language (other than the language of their thesis) relevant to their studies.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is two years (6 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit**. Please refer to the Academic Regulations for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Digital Innovation in Journalism Studies MA

Admission Requirements

- Undergraduate degree with a minimum GPA of 3.00 on a 4.30 scale.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants should understand that admission to the program is contingent on a sound undergraduate academic record, strong letters of reference, and a convincing statement of purpose which clearly describes their academic interest in the program and intended area of research. Applicants who do not meet the standards for admission may be required to complete a qualifying program of up to 12 undergraduate credits in addition to the regular graduate program. For the qualifying program a minimum grade point average of 3.00 (*B* average) is required.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Journalism Courses page for course descriptions.

Digital Innovation in Journalism Studies MA (45 credits)

9 credits of Required Courses:
- JOUR 601 Critical Approaches to Journalistic Thought (3.00)
- JOUR 604 Research Methods for Journalism (3.00)
- JOUR 605 Digital Innovation in Journalism (3.00)

6 credits of Elective Courses:
- JOUR 502 Introduction to Reporting (3.00)
- JOUR 503 Introduction to Visual Journalism (3.00)
- JOUR 511 Introduction to Multimedia (3.00)
- JOUR 523 News and Feature Photography (3.00)
- JOUR 603 Political Economy of Journalism (3.00)
- JOUR 610 International Journalism (3.00)
- JOUR 620 Journalism Ethics and the Law (3.00)
- JOUR 630 Mediating Diversity through Audio Story-telling (3.00)
- JOUR 640 Textual Approaches to Journalism (3.00)
- JOUR 642 Special Topics in Journalism Studies (3.00)
- JOUR 645 Directed Study (3.00)

With the permission of the department, up to six elective credits may be taken in 600-level courses offered by other departments.

30 credits chosen from: Digital Innovation in Journalism Studies MA Option A
Digital Innovation in Journalism Studies MA Option B
Digital Innovation in Journalism Studies MA Option C

Digital Innovation in Journalism Studies MA Option A

6 credits:
- JOUR 650 Journalism Readings and Proposal (6.00)

24	credits: • JOUR 691 Thesis (24.00)

Digital Innovation in Journalism Studies MA Option B

6	credits: • JOUR 650 Journalism Readings and Proposal (6.00)
24	credits: • JOUR 693 Research-Creation Thesis (24.00)

Digital Innovation in Journalism Studies MA Option C

18	credits: • JOUR 684 Essay I (9.00) • JOUR 685 Essay II (9.00)
12	additional course credits in consultation with the student's faculty advisor and approved by the Graduate Program Director

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Journalism Graduate Diploma

Admission Requirements

- Bachelor's degree or equivalent in a field other than journalism from a recognized university with a minimum GPA of 3.00.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Students who have graduated with a Journalism degree in a language other than English may also be considered. Applicants are required to submit a letter of intent together with the application which should be about 600 words outlining the student's background, academic and work experience, and aspirations in journalism. Qualified applicants may be interviewed. Students should be aware that written assignments in workshops are in English.

Although it does not determine acceptance, applicants are advised that a working knowledge of French is important. Normally the program is taken full-time and completed in one year (three terms).

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 33 credits.

Please see the Journalism Courses page for course descriptions.

Journalism Graduate Diploma (33 credits)

9 credits of Summer Term, Required Courses:
- JOUR 501 Research Methods for Journalism (3.00)
- JOUR 502 Introduction to Reporting (3.00)
- JOUR 511 Introduction to Multimedia (3.00)

12 credits of Fall Term, Required Courses:
- JOUR 500 Critical Approaches to Journalism (3.00)
- JOUR 504 Intermediate Reporting (3.00)
- JOUR 530 Advanced Radio News (3.00)
- JOUR 536 Advanced Video Journalism (3.00)

6 credits of Winter Term, Required Courses:
- JOUR 510 Web Editing and Page Design (3.00)
- JOUR 513 Journalism Ethics and the Law (3.00)

6 credits of Winter Term, Elective Courses:
- JOUR 505 Advanced Reporting (3.00)Please not that some electives may not be offered in any given year.
- JOUR 508 Research Project (3.00)
- JOUR 528 The Digital Magazine (3.00)
- JOUR 532 Documentary Video and Radio (3.00)
- JOUR 542 International Journalism (3.00)
- JOUR 566 Photojournalism (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits.

3. **Graduation Requirement.** To graduate, students must have completed all course requirements with a cumulative grade point average of at least 2.70.

Visual Journalism Graduate Diploma

Admission Requirements

- Undergraduate degree with a minimum GPA of 3.00 on a 4.30 scale.
- Some experience in journalism, photojournalism or a media-related field is considered an asset.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants should understand that admission is contingent upon a sound undergraduate academic record, strong letters of recommendation, and a convincing letter of intent, which clearly describes their interest in the program. Students should be aware that course instruction and assignments are in English, and although it does not determine acceptance, applicants are advised that a working knowledge of French is important.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 33 credits.

Please see the Journalism Courses page for course descriptions.

Visual Journalism Graduate Diploma (33 credits)

9	credits of Summer Term courses: • JOUR 501 Research Methods for Journalism (3.00) • JOUR 502 Introduction to Reporting (3.00) • JOUR 511 Introduction to Multimedia (3.00)
12	credits of Fall Term courses: • JOUR 500 Critical Approaches to Journalism (3.00) • JOUR 523 News and Feature Photography (3.00) • JOUR 527 Elements of Lighting for Visual Journalism (3.00) • JOUR 536 Advanced Video Journalism (3.00)
6	credits of Winter Term courses: • JOUR 513 Journalism Ethics and the Law (3.00) • JOUR 535 Documentary and Photographic Series (3.00)
6	credits chosen from the following courses: • JOUR 503 Introduction to Visual Journalism (3.00) • JOUR 507 Basics of Digital Imaging (3.00) • JOUR 508 Research Project (3.00) • JOUR 521 Visual Story-Telling (3.00) • JOUR 528 The Digital Magazine (3.00) • JOUR 531 Visual Journalism Photo Editing (3.00) • JOUR 532 Documentary Video and Radio (3.00) • JOUR 537 Visual Journalism Portfolio (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.

2. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits.
3. **Graduation Requirement.** To graduate, students must have completed all course requirements with a cumulative grade point average of at least 2.70.

Mathematics and Statistics PhD

Admission Requirements

- MSc degree, with high standing in Mathematics, Statistics, or an allied discipline from a recognized university.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Candidates are selected on the basis of their past academic record, letters of recommendation and the relevance of the proposed area of research to the areas of specialization of the Department.

Fast-tracking. Exceptional candidates who have successfully completed one-year's study at the Master's level may, upon approval by the Graduate Studies Committee, be exempted from the required completion of the Master's degree and admitted directly into the PhD program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Mathematics and Statistics Courses page for course descriptions.

Mathematics and Statistics PhD (90 credits)

12 credits of Comprehensive Examinations:
- MAST 890 Comprehensive Examination A (6.00)
- MAST 891 Comprehensive Examination B (6.00)

18 credits chosen from the Mathematics and Statistics PhD Electives and Seminars
The selection of the courses and seminars must be approved by the Graduate Program Director in consultation with the student's supervisor.

60 credits:
- MAST 892 Doctoral Thesis (60.00)

Mathematics and Statistics PhD Electives and Seminars

- MATH 630 Topics in the Psychology of Mathematics Education (3.00)
- MAST 831 Class Field Theory (3.00)
- MAST 832 Elliptic Curves (3.00)
- MAST 833 Selected Topics in Number Theory (3.00)
- MAST 834 Selected Topics in Computational Algebra (3.00)
- MAST 837 Selected Topics in Analysis (3.00)
- MAST 838 Selected Topics in Pure Mathematics (3.00)
- MAST 840 Lie Groups (3.00)
- MAST 841 Partial Differential Equations (P.D.E.'s) (3.00)
- MAST 851 Differential Geometric Methods in Physics (3.00)
- MAST 852 Algebro-Geometric Methods in Physics (3.00)
- MAST 853 Gauge Theory and Relativity (3.00)
- MAST 854 Quantization Methods (3.00)
- MAST 855 Spectral Geometry (3.00)
- MAST 856 Selected Topics in Mathematical Physics (3.00)

- MAST 857 Selected Topics in Differential Geometry (3.00)
- MAST 858 Seminar in Mathematical Physics (3.00)
- MAST 859 Seminar in Differential Geometry (3.00)
- MAST 860 Differentiable Dynamical Systems (3.00)
- MAST 861 Absolutely Continuous Invariant Measures (3.00)
- MAST 862 Numerical Analysis of Nonlinear Problems (3.00)
- MAST 863 Bifurcation Theory of Vector Fields (3.00)
- MAST 865 Selected Topics in Dynamical Systems (3.00)
- MAST 868 Seminar in Dynamical Systems (3.00)
- MAST 871 Advanced Probability Theory (3.00)
- MAST 872 Stochastic Processes (3.00)
- MAST 873 Advanced Statistical Inference (3.00)
- MAST 874 Advanced Multivariate Inference (3.00)
- MAST 875 Advanced Sampling (3.00)
- MAST 876 Survival Analysis (3.00)
- MAST 877 Reliability Theory (3.00)
- MAST 878 Advanced Risk Theory (3.00)
- MAST 881 Selected Topics in Probability, Statistics and Actuarial Mathematics (3.00)
- MAST 889 Seminar in Probability, Statistics and Actuarial Mathematics (3.00)
- MAST 898 Seminar in Number Theory (3.00)
- MAST 899 Seminar in Computational Algebra (3.00)

Additional Degree Requirements

Average Time to Completion. Normally a student completes all requirements for the degree, except for the thesis, within two years of entering the program. The normal period for completion of the program, for a student already holding the equivalent of an MA/MSc degree, is three to four years.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum period of residence is two years of full-time graduate study, beyond the MA/MSc, or the equivalent in part-time study. (A minimum of one year of full-time study is normally expected).
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Mathematics and Statistics MA/MSc

Admission Requirements

- Bachelor's degree with Honours in Mathematics, Statistics, or equivalent.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Qualified applicants requiring prerequisite courses may be required to take up to 12 undergraduate credits in addition to and as a part of the regular graduate program. Promising candidates who lack the equivalent of an Honours degree in Mathematics may be admitted after having completed a qualifying program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Mathematics and Statistics Courses page for course descriptions.

Mathematics and Statistics MSc/MA (45 credits)

45 credits chosen from:
Mathematics and Statistics MA/MSc with Thesis (Option A)
Mathematics and Statistics MA/MSc without Thesis (Option B)

Mathematics and Statistics MA/MSc with Thesis (Option A) (45 credits)

18 credits of coursework from the following categories:
Mathematics History and Methods Courses
Topology and Geometry Courses
Analysis Courses
Statistics and Actuarial Mathematics 600-level Courses
Applied Mathematics Courses
Algebra and Logic Courses
Statistics and Actuarial Mathematics 700-level Courses

27 credits:
• MAST 700 Thesis (27.00)

The choice of the option, the selection of the courses and the topic of the thesis, must be approved by the Graduate Program Director.

Mathematics and Statistics MA/MSc without Thesis (Option B) (45 credits)

30 credits of coursework from the following categories:
Mathematics History and Methods Courses
Topology and Geometry Courses
Analysis Courses
Statistics and Actuarial Mathematics 600-level Courses
Applied Mathematics Courses
Algebra and Logic Courses

Statistics and Actuarial Mathematics 700-level Courses

15 credits:

- MAST 702 Project - Stage I (3.00)
- MAST 703 Project - Stage II (3.00)
- MAST 704 Project - Stage III (3.00)
- MAST 705 Project - Stage IV (3.00)
- MAST 706 Project - Stage V (3.00)

All five Project courses are offered each term. Students are assessed on a pass/fail basis.
The five Project courses may be completed at any point during the program. They must be taken in sequence and can be taken concurrently.

Mathematics History and Methods Courses

- MAST 651 The Contributions of Mathematics to Intellectual Life (3.00)
- MAST 652 Topics in Research in Mathematics Education (3.00)
- MAST 653 Topics in the Foundations of Mathematics (3.00)
- MAST 654 Topics in the History of Mathematics (3.00)

Topology and Geometry Courses

- MAST 655 Topology (3.00)
- MAST 656 Differential Geometry (3.00)
- MAST 657 Manifolds (3.00)
- MAST 658 Lie Groups (3.00)

Analysis Courses

- MAST 661 Topics in Analysis (3.00)
- MAST 662 Functional Analysis I (3.00)
- MAST 663 Introduction to Ergodic Theory (3.00)
- MAST 664 Dynamical Systems (3.00)
- MAST 665 Complex Analysis (3.00)
- MAST 666 Differential Equations (3.00)
- MAST 667 Reading Course in Analysis (3.00)
- MAST 668 Transform Calculus (3.00)
- MAST 669 Measure Theory (3.00)

Statistics and Actuarial Mathematics 600-level Courses

- MAST 670 Mathematical Methods in Statistics (3.00)
- MAST 671 Probability Theory (3.00)
- MAST 672 Statistical Inference I (3.00)
- MAST 673 Statistical Inference II (3.00)
- MAST 674 Multivariate Analysis (3.00)
- MAST 675 Sample Surveys (3.00)
- MAST 676 Linear Models (3.00)
- MAST 677 Time Series (3.00)
- MAST 678 Statistical Consulting and Data Analysis (3.00)

- MAST 679 Topics in Statistics and Probability (3.00)

Applied Mathematics Courses

- MAST 680 Topics in Applied Mathematics (3.00)
- MAST 681 Optimization (3.00)
- MAST 682 Matrix Analysis (3.00)
- MAST 683 Numerical Analysis (3.00)
- MAST 684 Quantum Mechanics (3.00)
- MAST 685 Approximation Theory (3.00)
- MAST 686 Reading Course in Applied Mathematics (3.00)
- MAST 687 Control Theory (3.00)
- MAST 688 Stability Theory (3.00)
- MAST 689 Variational Methods (3.00)

Algebra and Logic Courses

- MAST 691 Mathematical Logic (3.00)
- MAST 692 Advanced Algebra I (3.00)
- MAST 693 Algebraic Number Theory (3.00)
- MAST 694 Group Theory (3.00)
- MAST 696 Advanced Algebra II (3.00)
- MAST 697 Reading Course in Algebra (3.00)
- MAST 698 Category Theory (3.00)
- MAST 699 Topics in Algebra (3.00)

Statistics and Actuarial Mathematics 700-level Courses

- MAST 720 Survival Analysis (3.00)
- MAST 721 Advanced Actuarial Mathematics (3.00)
- MAST 722 Advanced Pension Mathematics (3.00)
- MAST 723 Portfolio Theory (3.00)
- MAST 724 Risk Theory (3.00)
- MAST 725 Credibility Theory (3.00)
- MAST 726 Loss Distributions (3.00)
- MAST 727 Risk Classification (3.00)
- MAST 728 Reading Course in Actuarial Mathematics (3.00)
- MAST 729 Selected Topics in Actuarial Mathematics (3.00)

Thesis and Mathematical Literature

- MAST 700 Thesis (27.00)
- MAST 702 Project - Stage I (3.00)
- MAST 703 Project - Stage II (3.00)
- MAST 704 Project - Stage III (3.00)
- MAST 705 Project - Stage IV (3.00)
- MAST 706 Project - Stage V (3.00)

Additional Degree Requirements

Courses. Students may enter one of two options. The choice of the option, the selection of the courses and the topic of the thesis, must be approved by the Graduate Program Director.

Course Load. A full-time student will take at least two courses during the first term. A part-time student will normally take one course during the first term. The course load during subsequent terms will be determined by the Graduate Program Director, in consultation with the student.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Teaching of Mathematics MTM

Note: Admissions have been suspended

Admission Requirements

- Bachelor's degree with a minimum GPA of 3.00.
- An interest in the teaching of pre-university mathematics.
- An adequate mathematical background including courses equivalent to: a) 6 credits in statistics-probability; b) 6 credits in advanced calculus; c) 6 credits in linear algebra and d) 3 credits in differential equations or algebraic systems.
- Candidates must be able to demonstrate their capacity for graduate level work in some academic field, not necessarily mathematics.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Candidates will normally be interviewed to ensure their suitability for the program. Applicants with a deficiency in their academic background may be required to take up to 12 undergraduate credits in addition to or as a part of the regular graduate program. Promising candidates who lack the requirements for admission may be considered after having completed a qualifying program. Applicants without teaching experience may be admitted to the program provided they satisfy the Graduate Studies Committee of their potential for teaching or for educational research.

Degree Requirements

Please see the Mathematics and Statistics Courses page for course descriptions.

Teaching of Mathematics MTM (45 credits)

45 credits chosen from one of the following options:
Teaching of Mathematics MTM Thesis Option
Teaching of Mathematics MTM Project Option
Teaching of Mathematics MTM Course Option

Teaching of Mathematics MTM Thesis Option

21 credits:
- MATH 602 Readings in Mathematics Education I (3.00)
- MATH 647 Readings in Mathematics Education II (3.00)
- MATH 654 Thesis (15.00)

24 credits chosen from eight additional 3-credit courses.

The choice of the option, the selection of the courses and the thesis or project topic must be approved by the Graduate Program Director.
Besides the courses listed, MTM students may take any MAST 600 or higher level course offered in the MSc program, subject to the Graduate Program Director's approval. Students aspiring to become College mathematics teachers upon graduation will be encouraged to take at least three MSc mathematics courses.

Teaching of Mathematics MTM Project Option

12 credits:

- MATH 602 Readings in Mathematics Education I (3.00)
- MATH 603 Extended Project (9.00)

33 credits chosen from eleven additional 3-credit courses

The choice of the option, the selection of the courses and the thesis or project topic must be approved by the Graduate Program Director.
Besides the courses listed, MTM students may take any MAST 600 or higher level course offered in the MSc program, subject to the Graduate Program Director's approval. Students aspiring to become College mathematics teachers upon graduation will be encouraged to take at least three MSc mathematics courses.

Teaching of Mathematics MTM Course Option

45 credits chosen from fifteen 3-credit courses
The choice of the option, the selection of the courses and the thesis or project topic must be approved by the Graduate Program Director.
Besides the courses listed, MTM students may take any MAST 600 or higher level course offered in the MSc program, subject to the Graduate Program Director's approval. Students aspiring to become College mathematics teachers upon graduation will be encouraged to take at least three MSc mathematics courses.

Psychology of Mathematics Education (PME) Courses

- MATH 630 Topics in the Psychology of Mathematics Education (3.00)
- MATH 649 Heuristics and Problem Solving (3.00)

Didactics of Mathematics (DM) Courses

- MATH 624 Topics in Mathematics Education (3.00)

Information and Communication Technology (ICT) Courses

- MATH 633 Applications of Technology in Mathematics Curriculum Development (3.00)
- MATH 634 Computer Software and Mathematics Instruction (3.00)
- MATH 639 Topics in Technology in Mathematics Education (3.00)

Research in Mathematics Education (RME) Courses

- MATH 641 Survey of Research in Mathematics Education (3.00)
- MATH 642 Research Methods for Mathematics Education (3.00)
- MATH 645 Topics in Mathematics Education Research (3.00)
- MATH 646 Research Internship (3.00)

Mathematics content courses (MC) Courses

- MATH 601 Topics in Mathematics (3.00)
- MATH 613 Topics in Number Theory (3.00)
- MATH 616 Linear Algebra (3.00)
- MATH 618 Topics in the Application of Mathematics (3.00)

- MATH 621 Geometry (3.00)
- MATH 622 Abstract Algebra (3.00)
- MATH 625 Topology (3.00)
- MATH 626 Analysis I (3.00)
- MATH 627 Analysis II (3.00)
- MATH 637 Statistics and Probability (3.00)
- MATH 640 Topics in Logic (3.00)
- MATH 648 Topics in the History of Mathematics (3.00)

Thesis or Extended Project (T/P) Courses

- MATH 652 Seminar in Mathematics Education (3.00)
- MATH 602 Readings in Mathematics Education I (3.00)
- MATH 647 Readings in Mathematics Education II (3.00)
- MATH 654 Thesis (15.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Philosophy MA

Admission Requirements

- Honours degree in philosophy, or its equivalent.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Qualified applicants requiring prerequisite courses may be required to take up to 12 undergraduate credits in addition to and as a part of the regular graduate program. Applicants with deficiencies in their undergraduate preparation may be required to take a qualifying program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Philosophy Courses page for course descriptions.

Philosophy MA (45 credits)

18	credits of coursework, with a minimum of: 3 credits chosen from History of Philosophy Courses 3 credits chosen from Aesthetics, Moral Philosophy, or Social and Political Philosophy Courses 3 credits chosen from Metaphysics, Epistemology or Philosophy of Science Courses
27	credits chosen from: Option A : Philosophy MA Research Thesis Option B : Philosophy MA Monograph Thesis

Option A : Philosophy MA Research Thesis

- PHIL 693 Research Thesis (27.00)

Option B : Philosophy MA Monograph Thesis

- PHIL 696 Monograph Thesis (27.00)

History of Philosophy Courses

- PHIL 607 Kant (3.00)
- PHIL 609 Selected Topics in the History of Philosophy (3.00)
- PHIL 612 Ancient Philosophy (3.00)
- PHIL 613 Medieval Philosophy (3.00)
- PHIL 614 Modern Philosophy (3.00)
- PHIL 615 19th-Century Philosophy (3.00)
- PHIL 616 Selected Topics in the History and Philosophy of Science (3.00)
- PHIL 617 Origins of Analytic Philosophy (3.00)
- PHIL 618 Origins of Continental Philosophy (3.00)

Aesthetics, Moral Philosophy, or Social and Political Philosophy Courses

- PHIL 621 Value Theory (3.00)
- PHIL 623 Issues in Ethical Theory (3.00)
- PHIL 624 Moral Problems (3.00)
- PHIL 625 Aesthetics (3.00)
- PHIL 626 Political Philosophy (3.00)
- PHIL 627 Marx (3.00)
- PHIL 628 Philosophy of Law (3.00)
- PHIL 629 Values and Biotechnology (3.00)
- PHIL 631 Theories of Justice (3.00)
- PHIL 632 Environmental Philosophy (3.00)
- PHIL 633 Selected Topics in Value Theory (3.00)

Metaphysics, Epistemology, or Philosophy of Science Courses

- PHIL 634 Selected Topics in Epistemology (3.00)
- PHIL 641 Philosophical Foundations of Biology (3.00)
- PHIL 643 Selected Topics in Metaphysics (3.00)
- PHIL 644 Philosophy of Science (3.00)
- PHIL 645 Philosophy of Mathematics (3.00)
- PHIL 646 Philosophy of Language (3.00)
- PHIL 647 Philosophy of Mind (3.00)
- PHIL 648 Philosophy of Social Science (3.00)
- PHIL 649 Phenomenology (3.00)
- PHIL 652 Selected Topics in Logic (3.00)
- PHIL 656 Selected Topics in Analytic Philosophy (3.00)
- PHIL 658 Selected Topics in Continental Philosophy (3.00)
- PHIL 659 Selected Topics in Metaphysics, Epistemology, or Philosophy of Science (3.00)

To be classified each year by the graduate program director

- PHIL 672 Tutorial (3.00)
- PHIL 678 Topics in Current Research (3.00)
- PHIL 698 The Teaching of Philosophy (3.00)

Additional Degree Requirements

Cognate Courses. Students may enrol in certain courses in the Departments of Education, Political Science, and Religions and Cultures with permission of the Philosophy Graduate Program Director and the second department involved.

Cross-registration. Graduate students in philosophy at Concordia University may take for credit the equivalent of 6 credits at the Université de Montréal, McGill University, or the Université du Québec à Montréal. Courses taken elsewhere may be accepted as credit for one graduate-level course in the Department of Philosophy.

Permission for such a substitution must be granted by the Graduate Program Director in the Department of Philosophy, and approval from the other university or department involved must be obtained.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic

Regulations.

2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Physics PhD

Admission Requirements

- MSc degree in Physics or a related field with high standing from a recognized university.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Meritorious students enrolled in the MSc program in Physics at this university who have completed all requirements except for the thesis may apply for permission to proceed directly to doctoral studies without submitting a master's thesis.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Physics Courses page for course descriptions.

Physics PhD (90 credits)

9	credits chosen from Physics PhD Electives
6	credits: • PHYS 861 Doctoral Seminar on Selected Topics I (3.00) • PHYS 862 Doctoral Seminar on Selected Topics II (3.00)
6	credits: • PHYS 870 Comprehensive Examination and Research Proposal (6.00)
69	credits: • PHYS 890 Doctoral Research and Thesis (69.00)

Physics PhD Electives

- PHYS 601 Advanced Quantum Mechanics I (3.00)
- PHYS 602 Advanced Quantum Mechanics II (3.00)
- PHYS 603 High Energy Physics (3.00)
- PHYS 608 Selected Topics in High Energy Physics (3.00)
- PHYS 609 Selected Topics in Quantum Physics (3.00)
- PHYS 636 Condensed Matter Physics I (3.00)
- PHYS 637 Condensed Matter Physics II (3.00)
- PHYS 638 Additional Module in Condensed Matter Physics (1.00)
- PHYS 639 Selected Topics in Condensed Matter Physics (3.00)
- PHYS 642 Statistical Physics (3.00)
- PHYS 644 Advanced Classical Mechanics and Relativity (3.00)
- PHYS 646 Electrodynamics (3.00)
- PHYS 648 Non Linear Waves (3.00)
- PHYS 649 Selected Topics in Theoretical Physics (3.00)
- PHYS 660 Chemical Aspects of Biophysics (3.00)
- PHYS 663 Quantitative Human Systems Physiology (3.00)
- PHYS 665 Principles of Medical Imaging (3.00)
- PHYS 666 Additional Module in Biophysics (1.00)

- PHYS 667 Selected Topics in Biophysics (3.00)
- PHYS 668 Additional Module in Biomedical Physics (1.00)
- PHYS 669 Selected Topics in Biomedical Physics (3.00)
- PHYS 678 Additional Module in Applied Physics (1.00)
- PHYS 679 Selected Topics in Applied Physics (3.00)
- PHYS 688 Additional Module in Computational Physics (1.00)
- PHYS 689 Selected Topics in Computational Physics (3.00)

Students may, with permission of their supervisor, take courses from the following list:

- CHEM 620 Selected Topics in Organic Chemistry (3.00)
- CHEM 630 Selected Topics in Physical Chemistry (3.00)
- CHEM 651 Nanochemistry (3.00)
- CHEM 690 Selected Topics in Instrumentation (3.00)
- CHME 6071 Materials Science and Engineering (4.00)
- CHME 6121 Nanomaterials Science and Engineering (4.00)
- COEN 6211 Biological Computing and Synthetic Biology (4.00)
- ELEC 6271 Nanoscience and Nanotechnology: Opto-Electronic Devices (4.00)
- ELEC 6661 Medical Image Processing (4.00)
- ELEC 6671 Biological Signal Processing (4.00)
- ENGR 6281 Modelling Turbulent Flows (4.00)
- MAST 694 Group Theory (3.00)
- MAST 840 Lie Groups (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations. **Program Specific Requirements.** Students must obtain an assessment grade point average (AGPA) of 3.00 based on a minimum of 6 credits.
2. **Residence.**The minimum period of residence is two years (6 terms) of full-time graduate study beyond the master's degree, or the equivalent in part-time study, or three years (9 terms) of full-time graduate study beyond the bachelor's degree for those students who are permitted to enrol for doctoral studies without completing a master's degree.
3. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Physics MSc

Admission Requirements

- Honours degree, or its equivalent in Physics or a related field.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Qualified applicants lacking prerequisite courses are required to take undergraduate courses (up to 12 credits) in addition to the regular graduate program. Applicants with deficiencies in their undergraduate preparation may be required to take a one-year qualifying program before admission to the MSc program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Physics Courses page for course descriptions.

Physics MSc (45 credits)

9	credits chosen from Physics MSc courses
3	credits: • PHYS 760 MSc Seminar on Selected Topics (3.00)
33	credits: • PHYS 790 Master's Research and Thesis (33.00)

Physics MSc Courses

- PHYS 601 Advanced Quantum Mechanics I (3.00)
- PHYS 602 Advanced Quantum Mechanics II (3.00)
- PHYS 603 High Energy Physics (3.00)
- PHYS 608 Selected Topics in High Energy Physics (3.00)
- PHYS 609 Selected Topics in Quantum Physics (3.00)
- PHYS 636 Condensed Matter Physics I (3.00)
- PHYS 637 Condensed Matter Physics II (3.00)
- PHYS 638 Additional Module in Condensed Matter Physics (1.00)
- PHYS 639 Selected Topics in Condensed Matter Physics (3.00)
- PHYS 642 Statistical Physics (3.00)
- PHYS 644 Advanced Classical Mechanics and Relativity (3.00)
- PHYS 646 Electrodynamics (3.00)
- PHYS 648 Non Linear Waves (3.00)
- PHYS 649 Selected Topics in Theoretical Physics (3.00)
- PHYS 660 Chemical Aspects of Biophysics (3.00)
- PHYS 663 Quantitative Human Systems Physiology (3.00)
- PHYS 665 Principles of Medical Imaging (3.00)
- PHYS 666 Additional Module in Biophysics (1.00)
- PHYS 667 Selected Topics in Biophysics (3.00)
- PHYS 668 Additional Module in Biomedical Physics (1.00)

- PHYS 669 Selected Topics in Biomedical Physics (3.00)
- PHYS 678 Additional Module in Applied Physics (1.00)
- PHYS 679 Selected Topics in Applied Physics (3.00)
- PHYS 688 Additional Module in Computational Physics (1.00)
- PHYS 689 Selected Topics in Computational Physics (3.00)

Students may, with permission of their supervisor, take courses from the following list:

- CHEM 620 Selected Topics in Organic Chemistry (3.00)
- CHEM 630 Selected Topics in Physical Chemistry (3.00)
- CHEM 651 Nanochemistry (3.00)
- CHEM 690 Selected Topics in Instrumentation (3.00)
- CHME 6071 Materials Science and Engineering (4.00)
- CHME 6121 Nanomaterials Science and Engineering (4.00)
- COEN 6211 Biological Computing and Synthetic Biology (4.00)
- ELEC 6271 Nanoscience and Nanotechnology: Opto-Electronic Devices (4.00)
- ELEC 6281 Principles of Solid State Nanodevices (4.00)
- ELEC 6661 Medical Image Processing (4.00)
- ELEC 6671 Biological Signal Processing (4.00)
- MAST 694 Group Theory (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Political Science PhD

Admission Requirements

- MA in political science, political studies, international relations, public policy, or another relevant field from an accredited university normally with a minimum GPA of 3.5 or equivalent.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

A superior academic record and strong references are both essential; professional work experience will be taken into consideration. Applicants are selected on the basis of past academic record, letters of recommendation, statement of purpose, writing sample, and the relevance of their proposed research to the research expertise in the department. Enrolment in the PhD in Political Science is limited in part by the availability of research supervisors.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

All students will select two areas of specialization (for example Canadian Politics and International Politics).

Please see the Political Science Courses page for course descriptions.

Political Science PhD (90 credits)

6	credits of Core Courses, one in each of the two chosen areas of specialization: • POLI 801 Advanced Seminar in Comparative Politics (3.00) • POLI 802 Advanced Seminar in International Politics (3.00) • POLI 803 Advanced Seminar in Canadian and Québec Politics (3.00) • POLI 804 Advanced Seminar in Political Theory (3.00) • POLI 805 Advanced Seminar in Public Policy and Public Administration (3.00)
6	credits of Elective Courses, one in each of the same two chosen areas of specialization: • POLI 811 Special Topics in Comparative Politics (3.00) • POLI 812 Special Topics in International Politics (3.00) • POLI 813 Special Topics in Canadian and Québec Politics (3.00) • POLI 814 Special Topics in Political Theory (3.00) • POLI 815 Special Topics in Public Policy and Public Administration (3.00)
3	credits of Core Course in Public Policy: • POLI 805 Advanced Seminar in Public Policy and Public Administration (3.00) Where public policy is one of the two chosen areas of specialization, the elective course is to be selected from a third area.
3	credits of Elective Courses, chosen from any area of specialization or a cognate course in a related field.
3	credits: • POLI 844 Research Design (3.00)
12	credits: • POLI 885 Comprehensive Exam (6.00) • POLI 886 Comprehensive Exam (6.00)
3	credits: • POLI 889 Thesis Proposal (3.00)

53 credits:

- POLI 890 Thesis (54.00)

Additional Degree Requirements

Language Requirement. PhD candidates must demonstrate an ability to conduct research either in French or in a language (other than English) required in their area of research.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum period of residence is two calendar years (6 terms) of full-time graduate study beyond the Master's degree or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Political Science MA

Admission Requirements

- Undergraduate honours degree or the equivalent is required with a minimum GPA of 3.30.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Students who do not have the necessary background in political science, as well as in the concentration which they have chosen, may be required to take specific undergraduate courses in addition to the regular program. In certain cases, applicants may be required to complete a qualifying program in order to be eligible for admission to the graduate program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Political Science Courses page for course descriptions.

Political Science MA (45 credits)

3	credits of Core Courses in Area of Concentration: • POLI 603 International Relations Theory (3.00) • POLI 626 Seminar in Comparative Politics (3.00) • POLI 632 Seminar in Political Theory (3.00) • POLI 636 Theories of Public Policy and Public Administration (3.00) • POLI 638 Seminar in Canadian and Quebec Politics (3.00)
3	credits Research Course chosen from: • POLI 601 Research Design (3.00) • POLI 644 Research Methods (3.00)
6	credits of Concentration Courses in Subfield, with courses chosen from the subfield in which the student intends to write a thesis: Public Policy and Administration, Canadian and Quebec Politics, International Politics, Comparative Politics, and Political Theory
6	credits of Approved Elective Courses chosen from any of the 600-level courses in political science, or from cognate courses offered in related disciplines. For cognate courses, approval of the Director is required. In some cases approval for registration in cognate courses must be obtained from the department involved
3	credits: • POLI 694 Thesis Proposal (3.00)
24	credits: • POLI 696 Master's Thesis (24.00)

Additional Degree Requirements

Approved Elective and Cognate Courses. Two 3-credit courses chosen from any of the 600-level courses in political science, or from cognate courses offered in related disciplines. For cognate courses, approval of the Director is required. In some cases approval for registration in cognate courses must be obtained from the department involved (6 credits).

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
 Program Specific Requirements. Students must obtain a assessment grade point average (AGPA) of 2.70 based on a minimum of 12 credits.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Public Policy and Public Administration (MPPPA) MA

Admission Requirements

- Undergraduate degree in Political Science or a related discipline.
- Undergraduate degree with a minimum GPA of 3.30 or equivalent is normally required. If applying with a previous master's degree, a minimum GPA of 3.5 is normally required.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Students who do not have the necessary background in public policy and public administration may be required to take specific undergraduate courses in addition to the regular program. In certain cases, applicants may be required to complete a qualifying program in order to be eligible for admission to the graduate program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Political Science Courses page for course descriptions.

Public Policy and Public Administration (MPPPA) MA (45 credits)

9 credits of Public Policy and Public Administration MA Core Courses

36 credits chosen from:
Public Policy and Public Administration (MPPPA) MA Option A (Courses Only)
Public Policy and Public Administration (MPPPA) MA Option B (Internship)

Public Policy and Public Administration (MPPPA) MA Option B (Internship)

9 credits chosen from Public Policy and Administration MA Concentration Courses

6 credits of elective courses which can be chosen from courses offered under the subfields of Canadian and Quebec Politics, Comparative Politics, International Politics, Political Theory; or
• POLI 601 Research Design (3.00); or from cognate courses offered in related disciplines.

Note: For cognate courses, approval of the Director is required. In some cases approval for registration in cognate courses must be obtained from the department involved.

21 credits:
• POLI 686 Internship Preparation (3.00)
• POLI 688 Internship (9.00)
• POLI 689 Internship Report (9.00)

Public Policy and Public Administration (MPPPA) MA Option A (Courses Only)

12 credits chosen from the Public Policy and Administration MA Concentration Courses

12 credits of approved Elective and Cognate Courses chosen from subfields of Canadian and Quebec Politics, Comparative Politics, International Politics, Political Theory, or from cognate courses offered in related disciplines, or from the following course:
- POLI 601 Research Design (3.00)

Note: For cognate courses, approval of the Director is required. In some cases approval for registration in cognate courses must be obtained from the department involved.

12 credits:
- POLI 691 Extended Research Essay (12.00)

Public Policy and Public Administration MA Core Courses (9 credits)

6 credits of required courses:
- POLI 636 Theories of Public Policy and Public Administration (3.00)
- POLI 644 Research Methods (3.00)

3 credits chosen from:
- POLI 600 Public Policy and the Governmental Process in Canada (3.00)
- POLI 604 Comparative Public Policy (3.00)
- POLI 618 Canadian Public Administration (3.00)
- POLI 622 Comparative Public Administration (3.00)
- POLI 624 Public Administration of Intergovernmental Affairs (3.00)

Public Policy and Administration MA Concentration Courses

- POLI 600 Public Policy and the Governmental Process in Canada (3.00)
- POLI 604 Comparative Public Policy (3.00)
- POLI 605 Environmental Policy and Governance (3.00)
- POLI 607 Ageing and Public Policy (3.00)
- POLI 610 Economic Policy After Keynes (3.00)
- POLI 612 Public Policy and Business Cycles (3.00)
- POLI 612 Public Policy and Business Cycles (3.00)
- POLI 617 Knowledge in International Relations (3.00)
- POLI 618 Canadian Public Administration (3.00)
- POLI 622 Comparative Public Administration (3.00)
- POLI 624 Public Administration of Intergovernmental Affairs (3.00)
- POLI 628 Ethics and Values in Public Policy Making (3.00)
- POLI 630 0rganization Theory (3.00)
- POLI 634 Policy Analysis and Program Evaluation (3.00)
- POLI 635 Biotechnology, Agriculture and Food Policy (3.00)
- POLI 645 Indigenous Peoples and the State (3.00)
- POLI 648 Feminist Critiques of Public Policy (3.00)
- POLI 652 Science, Technology and Power (3.00)
- POLI 683 Special Topics in Public Policy and Administration (3.00)
- POLI 695 Directed Studies (3.00)

Additional Degree Requirements

Option A (Courses Only). For cognate courses, approval of the Director is required. In some cases approval for registration in cognate courses must be obtained from the department involved (12 credits).

Option B (Internship). For cognate courses, approval of the Director is required. In some cases approval for registration in cognate courses must be obtained from the department involved (6 credits).

Language Requirement. Students in the MA (Public Policy and Public Administration) Option B Internship are expected to demonstrate an ability to read and understand literature relevant to their field in French.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Psychology PhD

Admission Requirements

- Master's degree in psychology or its equivalent in a closely related discipline.
- Research and Clinical Training Option requires that applicants have completed specific Psychology undergraduate courses required by federal and provincial licensing bodies, including an empirically based undergraduate thesis or its equivalent, as well as master's-level courses in Psychology specified by the program.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Enrolment in these programs is limited in part by the availability of research supervisors and, for the Research and Clinical Training Option, by space in that option.

Applicants are selected on the basis of past academic record, letters of recommendation, and the relevance of their proposed research to the research expertise of the faculty. Students successfully completing their master's program in psychology at Concordia University need submit only an application form and letters of recommendation when applying for the doctoral degree. Psychology graduate courses are not open to graduate- level independent students, except in specific circumstances as defined by the department.

Accelerated Admission. Upon recommendation of their thesis supervisor, students enrolled in the Master of Arts (Psychology) program at Concordia University who have completed a minimum of 12 credits of graduate level course work and who have shown high academic performance and potential through performance in research may apply for accelerated admission to doctoral studies without submitting a master's thesis. Approval for accelerated admission must be obtained from the student's thesis committee and the graduate admissions subcommittee by August 15 to allow entry into the PhD program in the Fall term. Students in the Psychology MA Research Option who obtain accelerated admission to the PhD program are not required to take the elective course (chosen from PSYC 716, PSYC 721, PSYC 724, PSYC 725, PSYC 726, PSYC 727 or PSYC 734) as part of their MA coursework. Students in the Psychology MA Research and Clinical Training option may not obtain accelerated admission to the PhD program from MA Year I, but may apply for accelerated admission, upon recommendation of their thesis supervisor, from MA Year II.

Language Requirements. Although no formal language courses or examinations are required, students intending to work in Quebec are strongly encouraged to develop a working knowledge of French. Students who plan to seek admission to the Ordre des Psychologues du Québec (OPQ) are advised that Article 46 of the professional code of the Province of Quebec states that a working knowledge of French is required for professional certification.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Psychology Courses page for course descriptions.

Psychology PhD (90 credits)

90 credits chosen from one of the following options:
Psychology PhD Research Option
Psychology PhD Research and Clinical Training Option

Psychology PhD Research Option (90 credits)

66 credits of Required Courses:
• PSYC 801 Research Seminar I (3.00)

- PSYC 802 Research Seminar II (3.00)
- PSYC 880 PhD Comprehensive Examination (0.00)
- PSYC 890 Research and Thesis (60.00)

6 credits chosen from:

- PSYC 721 Special Topics Seminar (3.00)
- PSYC 722 Focused Topic Seminar (1.50)
- PSYC 724 Special Topics in Clinical and Health Psychology (3.00)
- PSYC 725 Special Topics in Cognitive Science (3.00)
- PSYC 726 Special Topics in Human Development (3.00)
- PSYC 727 Special Topics in Behavioural Neuroscience (3.00)

Note: Special Topics seminars may be taken multiple times provided that the course content has changed.

18 credits completed from Set A: Psychology PhD Research Option and Set B: Psychology PhD Research Option

Set A: Psychology PhD Research Option

Students must complete 3 to 12 credits from the following:

- PSYC 844 Clinical and Health Research Area Seminar II (3.00)Note: each 3-credit seminar may be taken up to 4 times as an
- PSYC 845 Cognitive Science Area Seminar II (3.00)elective option provided the topic differs.
- PSYC 846 Human Development Area Seminar II (3.00)
- PSYC 847 Behavioural Neuroscience Area Seminar II (3.00)

Set B: Psychology PhD Research Option

Students must complete 6 to 15 credits from the following:

- PSYC 714 Central Topics in Psychology (6.00)Note: Special Topics seminars may be taken multiple times provided that the
- PSYC 716 Advanced Human Development (3.00)course content has changed.
- PSYC 721 Special Topics Seminar (3.00)
- PSYC 722 Focused Topic Seminar (1.50)
- PSYC 724 Special Topics in Clinical and Health Psychology (3.00)
- PSYC 725 Special Topics in Cognitive Science (3.00)
- PSYC 726 Special Topics in Human Development (3.00)
- PSYC 734 Multivariate Statistics (3.00)
- PSYC 8503 Practicum in Research Techniques (3.00)
- PSYC 8506 Practicum in Research Techniques (6.00)
- PSYC 851 Teaching of Research Techniques (3.00)

Psychology PhD Research and Clinical Training Option (90 credits)

66 credits of Required Courses:

- PSYC 801 Research Seminar I (3.00)
- PSYC 802 Research Seminar II (3.00)
- PSYC 880 PhD Comprehensive Examination (0.00)
- PSYC 890 Research and Thesis (60.00)

3 credits chosen from:

- PSYC 721 Special Topics Seminar (3.00)
- PSYC 722 Focused Topic Seminar (1.50)
- PSYC 724 Special Topics in Clinical and Health Psychology (3.00)
- PSYC 725 Special Topics in Cognitive Science (3.00)
- PSYC 726 Special Topics in Human Development (3.00)

• PSYC 727 Special Topics in Behavioural Neuroscience (3.00)

Note: Special Topics seminars may be taken multiple times provided that the course content has changed.

21 credits chosen from the following sets:

3 credits chosen from:
• PSYC 8103 Advanced Adult Psychopathology (3.00)
• PSYC 8104 Advanced Child and Adolescent Psychopathology (3.00)

3 credits chosen from:
• PSYC 8203 Advanced Adult Intervention (3.00)
• PSYC 8204 Advanced Child and Adolescent Intervention (3.00)

3 credits chosen from Internal Practicum III courses:
• PSYC 823 Internal Practicum III: General (3.00)
• PSYC 824 Internal Practicum III: Adult (3.00)
• PSYC 825 Internal Practicum III: Child and Adolescent (3.00)

3 credits:
• PSYC 834 Science in Practice: Applied Research, Consultation, and Supervision (3.00)

3 credits chosen from External Practicum II courses:
• PSYC 838 External Practicum II: General (3.00)
• PSYC 839 External Practicum II: Adult (3.00)
• PSYC 840 External Practicum II: Child and Adolescent (3.00)

3 credits chosen from External Practicum III courses:
• PSYC 841 External Practicum III: General (3.00)
• PSYC 842 External Practicum III: Adult (3.00)
• PSYC 843 External Practicum III: Child and Adolescent (3.00)

3 credits:
• PSYC 885 Predoctoral Clinical Internship (3.00)

0 credits:
• PSYC 899 Progress in Clinical Doctorate (0.00)

Additional Degree Requirements

At least one adult and one child/adolescent client must be seen in the required practicum courses (Internal Practicum II or III, External Practicum I). All students following the Research and Clinical Training Option are expected to attend case conferences at the training clinic in the Department of Psychology.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is two years (6 terms) of full-time study beyond the MA degree, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits. In the case of the Diploma in Clinical Psychology, the time limit is 9 terms (3 years) for full-time students; for part-time students the time limit is 15 terms (5 years).
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Psychology MA

Admission Requirements

- Research Option: undergraduate degree in psychology or a closely related discipline.
- Research and Clinical Training Option: honours undergraduate degree in psychology or its equivalent.
- Completion of specific undergraduate courses required by federal and provincial licensing bodies, including an empirically based undergraduate thesis or its equivalent.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applications from students with non-psychology degrees are evaluated to assess whether they are sufficiently prepared for graduate studies in Psychology. Students who are lacking up to three of these courses may obtain the equivalency for the missing credits by taking appropriate undergraduate and/or graduate courses during their degree.

Enrolment in these programs is limited in part by the availability of research supervisors and, for the Research and Clinical Training Option, by space in that option.

Applicants are selected on the basis of past academic record, letters of recommendation, and the relevance of their proposed research to the research expertise of the faculty.

Students successfully completing their master's program in psychology at Concordia University need submit only an application form and letters of recommendation when applying for the doctoral degree. Psychology graduate courses are not open to graduate- level independent students, except in specific circumstances as defined by the department.

Accelerated Admission. Upon recommendation of their thesis supervisor, students enrolled in the Master of Arts (Psychology) program at Concordia University who have completed a minimum of 12 credits of graduate level course work and who have shown high academic performance and potential through performance in research may apply for accelerated admission to doctoral studies without submitting a master's thesis. Approval for accelerated admission must be obtained from the student's thesis committee and the graduate admissions subcommittee by August 15 to allow entry into the PhD program in the Fall term. Students in the Research Option who obtain accelerated admission are not required to take the elective course (chosen from PSYC 700 PSYC 716 PSYC 721 PSYC 724 PSYC 725 PSYC 726 PSYC 727 PSYC 734) as part of their MA coursework. Students in the Research and Clinical Training option may not obtain accelerated admission to the PhD program from MA Year I, but may apply for accelerated admission, upon recommendation of their thesis supervisor, from MA Year II.

Language Requirements. Although no formal language courses or examinations are required, students intending to work in Quebec are strongly encouraged to develop a working knowledge of French. Students who plan to seek admission to the Ordre des Psychologues du Québec (OPQ) are advised that Article 46 of the professional code of the Province of Quebec states that a working knowledge of French is required for professional certification.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Psychology Courses page for course descriptions.

Psychology MA (45 credits)

45	credits chosen from: Psychology MA Research Option Psychology MA Research and Clinical Training Option

Psychology MA Research Option

3 credits:
- PSYC 601 Statistical Analysis and Experimental Design (3.00)

3 credits chosen from one of the following courses:
- PSYC 644 Clinical and Health Research Area Seminar I (3.00)
- PSYC 645 Cognitive Science Area Seminar I (3.00)
- PSYC 646 Human Development Area Seminar I (3.00)
- PSYC 647 Behavioural Neuroscience Area Seminar I (3.00)

6 credits:
- PSYC 714 Central Topics in Psychology (6.00)

3 credits selected from the following courses in consultation with the thesis supervisor:
- PSYC 716 Advanced Human Development (3.00)
- PSYC 721 Special Topics Seminar (3.00)
- PSYC 722 Focused Topic Seminar (1.50)
- PSYC 724 Special Topics in Clinical and Health Psychology (3.00)
- PSYC 725 Special Topics in Cognitive Science (3.00)
- PSYC 726 Special Topics in Human Development (3.00)
- PSYC 727 Special Topics in Behavioural Neuroscience (3.00)
- PSYC 734 Multivariate Statistics (3.00)

30 credits:
- PSYC 690 Research and Thesis (30.00)

Psychology MA Research and Clinical Training Option (45 credits)

Students in this option concurrently complete the courses indicated under Clinical Psychology Graduate Diploma .

3 credits:
- PSYC 601 Statistical Analysis and Experimental Design (3.00)

0 credits chosen from one of the following courses:
- PSYC 6440 Clinical and Health Research Area Seminar I (0.00)
- PSYC 6450 Cognitive Science Area Seminar I (0.00)
- PSYC 6460 Human Development Area Seminar I (0.00)
- PSYC 6470 Behavioural Neuroscience Area Seminar I (0.00)

3 credits from one of the following courses:
- PSYC 721 Special Topics Seminar (3.00)
- PSYC 722 Focused Topic Seminar (1.50)
- PSYC 724 Special Topics in Clinical and Health Psychology (3.00)
- PSYC 725 Special Topics in Cognitive Science (3.00)
- PSYC 726 Special Topics in Human Development (3.00)
- PSYC 727 Special Topics in Behavioural Neuroscience (3.00)

Note: Special Topics seminars may be taken multiple times provided that the course content has changed.

6 credits:
- PSYC 714 Central Topics in Psychology (6.00)

3 credits:
- PSYC 734 Multivariate Statistics (3.00)

30 credits:

- PSYC 690 Research and Thesis (30.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits. In the case of the Diploma in Clinical Psychology, the time limit is 9 terms (3 years) for full-time students; for part-time students the time limit is 15 terms (5 years).
3. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Clinical Psychology Graduate Diploma

Program

The Diploma in Clinical Psychology provides students enroled in the MA in Psychology (Research and Clinical Training Option) with clinical coursework and practica qualifying them for further clinical training provided in the PhD in Psychology (Research and Clinical Training Option).

Admission Requirements

- Open only to students enrolled in the MA or PhD in Psychology (Research and Clinical Training Option).
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Language Requirements. Although no formal language courses or examinations are required, students intending to work in Quebec are strongly encouraged to develop a working knowledge of French. Students who plan to seek admission to the Ordre des Psychologues du Québec (OPQ) are advised that Article 46 of the professional code of the Province of Quebec states that a working knowledge of French is required for professional certification.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Psychology Courses page for course descriptions.

Clinical Psychology Graduate Diploma (30 credits)

24	credits of Required Courses: • PSYC 700 Personality and Psychopathology (3.00) • PSYC 701 Psychometrics, Intelligence, and Neurocognitive Evaluation (3.00) • PSYC 703 Cognitive and Behavioural Interventions (3.00) • PSYC 704 Group and Systemic Interventions (3.00) • PSYC 705 Internal Practicum I (3.00) • PSYC 706 Diagnostic Evaluation Practicum (3.00) • PSYC 707 Cognitive Evaluation Practicum (3.00) • PSYC 7201 Introduction to Ethics for Clinical Psychology (1.00) • PSYC 7202 Seminar on Ethical and Professional Issues (2.00) • PSYC 799 Progress in Clinical Diploma (0.00)
3	credits chosen from: • PSYC 708 Internal Practicum II: General (3.00) • PSYC 709 Internal Practicum II: Adult (3.00) • PSYC 710 Internal Practicum II: Child and Adolescent (3.00)
3	credits chosen from: • PSYC 711 External Practicum I: General (3.00) • PSYC 712 External Practicum I: Adult (3.00) • PSYC 713 External Practicum I: Child and Adolescent (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits. In the case of the Diploma in Clinical Psychology, the time limit is 9 terms (3 years) for full-time students; for part-time students the time limit is 15 terms (5 years).
3. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Religion PhD

Program

This degree is offered conjointly with the Département des sciences religieuses of the Université du Québec à Montréal and the Faculté de théologie et de sciences religieuses of the Université Laval. There are five areas of concentration: theories of religion, history of religions, contemporary religious phenomena, Judaic studies, and comparative religion and ethics. A student chooses to register in one of the three universities on the basis of the match between faculty expertise and the student's specialization, and is subject to that university's regulations. Each student is graduated by the university of their registration. The joint degree provides a context for collaboration between the three departments, with some exchange of faculty for teaching and direction. There are two required doctoral seminars one of which is common to students at all three universities in alternate years.

The doctoral program in Religion at Concordia places strong emphasis on a comparative approach. The comparative study of religion incorporates a number of different but related inquiries, including: examination of the inter-relations between religious beliefs and practices; analysis of religions as social and cultural phenomena and of cultures and societies insofar as they have been influenced by religious traditions; study of inter-relations between religions and human values; investigation of religious ethics; as well as analysis of social issues from the perspective of religious values. These studies are comparative insofar as particular expressions of religions and ethics are viewed as unique but historically situated realities which often can best be understood by making formal or informal comparisons with other comparable realities.

Although the requirements are fundamentally the same in all three universities, the remainder of this section applies only to students registered at Concordia.

Admission Requirements

- MA in Religion, or equivalent, with high standing from a recognized university.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

The Department will consider the application of students to the PhD program for entry without completion of the master's degree if the following requirements are met:

- the student has completed 18 credits of graduate level course work in Religion with high standing;
- the student is recommended by full-time members of the faculty of the Department of Religions and Cultures;
- the student has acquired a breadth of knowledge in the study of Religion through course work or scholarly or professional experience;
- the student has demonstrated her or his ability to do independent graduate-level research in religious studies, and has demonstrated the ability to produce an original analysis of her/his research (in the form of research papers, conference papers, or publications);
- the student has a well-formed and focused research plan that will serve as a basis for her/his doctoral research.

Transfer Credits. See Transfer Credits in Graduate Admissions section.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Religions and Cultures Courses page for course descriptions.

Religion PhD (90 credits)

6 credits:

• RELI 890 Doctoral Seminar (6.00)

6 credits chosen from the Seminar of Specialization:
• RELI 891 Religions and Cultures Doctoral Seminar (6.00)
• RELI 892 Judaic Studies (6.00)

Religion PhD students should enrol in either RELI 891 or RELI 892, according to their specialization, in the first or second or equivalent year of the program.

18 credits of Directed Reading Courses, offered according to the resources of the department and the needs of the students, chosen from the following lists:
PhD Topics in Judaic Studies (PhD)
Topics in Religions and Cultures (PhD)
Note: Some of the courses at the Master of Arts level are open to PhD candidates, with the requirement of additional work and higher standards of performance.

15 credits:
• RELI 860 Doctoral Comprehensive Examination (15.00)

45 credits:
• RELI 870 Doctoral Thesis (45.00)

Topics in Judaic Studies (PhD)

• RELI 801 Topics in Judaic Studies (3.00)
• RELI 802 Topics in Judaic Studies (3.00)
• RELI 803 Topics in Judaic Studies (3.00)
• RELI 804 Topics in Judaic Studies (3.00)
• RELI 805 Topics in Judaic Studies (3.00)
• RELI 806 Topics in Judaic Studies (3.00)
• RELI 807 Topics in Judaic Studies (3.00)
• RELI 809 Topics in Judaic Studies (3.00)
• RELI 810 Topics in Judaic Studies (3.00)
• RELI 811 Topics in Judaic Studies (3.00)
• RELI 812 Topics in Judaic Studies (3.00)
• RELI 813 Topics in Judaic Studies (3.00)
• RELI 814 Topics in Judaic Studies (3.00)
• RELI 815 Topics in Judaic Studies (3.00)
• RELI 816 Topics in Judaic Studies (3.00)
• RELI 817 Topics in Judaic Studies (3.00)
• RELI 818 Topics in Judaic Studies (3.00)

Topics in Religions and Cultures (PhD)

• RELI 820 Topics in Religions and Cultures (3.00)
• RELI 821 Topics in Religions and Cultures (3.00)
• RELI 823 Topics in Religions and Cultures (3.00)
• RELI 824 Topics in Religions and Cultures (3.00)
• RELI 825 Topics in Religions and Cultures (3.00)
• RELI 826 Topics in Religions and Cultures (3.00)
• RELI 827 Topics in Religions and Cultures (3.00)
• RELI 828 Topics in Religions and Cultures (3.00)
• RELI 829 Topics in Religions and Cultures (3.00)
• RELI 830 Topics in Religions and Cultures (3.00)

- RELI 831 Topics in Religions and Cultures (3.00)
- RELI 832 Topics in Religions and Cultures (3.00)
- RELI 833 Topics in Religions and Cultures (3.00)
- RELI 834 Topics in Religions and Cultures (3.00)
- RELI 835 Topics in Religions and Cultures (3.00)
- RELI 836 Topics in Religions and Cultures (3.00)
- RELI 837 Topics in Religions and Cultures (3.00)
- RELI 838 Topics in Religions and Cultures (3.00)
- RELI 839 Topics in Religions and Cultures (3.00)

Additional Degree Requirements

Doctoral Seminars. All candidates must register for RELI 890 in their first or second or equivalent year of study.

In the first or second or equivalent year of the program, the student will register as well for one of the following seminars according to their specialization: RELI 891 or RELI 892 .

Courses. A student is required to register for a minimum of 18 credits of directed reading. These courses are offered according to the resources of the department and the needs of the students. They are grouped into PhD Topics in Religions and Cultures and PhD Topics in Judaic Studies. Some of the courses at the Master of Arts level are open to PhD candidates, with the requirement of additional work and higher standards of performance.

Language Requirement. Students must achieve an acceptable command of the classical and/or modern languages appropriate to their area of specialization. Specific requirements in terms of numbers of years of study and examinations or other demonstrations of competence are established in consultation with the Graduate Program Director and the thesis supervisor. Students are also expected to be proficient in the language or languages of the primary sources relevant to their thesis research. All Canadian students are required to demonstrate a working knowledge of both English and French.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum period of residence is two years (6 terms) of full-time graduate study beyond the master's degree, or the equivalent in part time study, or three years (9 terms) of full-time graduate study beyond the bachelor's degree.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have satisfied all degree requirements and have a cumulative GPA of at least 3.00.

Judaic Studies MA

Admission Requirements

- BA or equivalent with high standing in Judaic Studies, Religious Studies, or a discipline in the Social Sciences, Humanities, or Fine Arts.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Options. Students are admitted to the Guided Research Paper (GRP) option but can be exceptionally admitted directly to the thesis option. To enter the thesis option, students must normally have completed RELI 6001, 9 credits of electives, and Research Preparation I and Research Preparation II. In addition, students must have achieved a minimum GPA of 3.70 or equivalent.

Qualifying program. Applicants with deficiencies in their undergraduate preparation may be required to take a qualifying program. Qualifying program students in the Department of Religions and Cultures must complete their program with a minimum GPA of 3.50 with no courses graded lower than a *B+* to be considered for admission to the graduate program.

Transfer Credits. See Transfer Credits in Graduate Admissions section.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

All students must take RELI 6001 Method and Theory in the Study of Religion.

Please see the Religions and Cultures Courses page for course descriptions.

Judaic Studies Master of Arts (45 credits)

3	credits of Core Course: • RELI 6001 Method and Theory in the Study of Religion (3.00)
42	credits chosen from: MA (Judaic Studies) with Guided Research Paper Option MA (Judaic Studies) with Thesis Option

MA (Judaic Studies) with Guided Research Paper Option (42 credits)

15	credits of Elective Courses chosen from: Topics in Judaic Studies (MA) Topics in Religions and Cultures (MA) Normally students may not take more than two 3-credit courses outside the Department.
6	credits: • RELI 6042 Research Preparation I (Judaic Studies) (3.00) • RELI 6043 Research Preparation II (Judaic Studies) (3.00)
3	credits: • RELI 6044 Guided Research Paper Proposal (Judaic Studies) (3.00)

18 credits:

• RELI 6045 Guided Research Paper I (Judaic Studies) (9.00)
• RELI 6046 Guided Research Paper II (Judaic Studies) (9.00)

MA (Judaic Studies) with Thesis Option (42 credits)

9 credits of Elective Courses chosen from:
Topics in Judaic Studies (MA)
Topics in Religions and Cultures (MA)
Normally students may not take more than one 3-credit course outside the Department.

6 credits:
• RELI 6042 Research Preparation I (Judaic Studies) (3.00) RELI 6043

3 credits:

• RELI 6050 Thesis Proposal (Judaic Studies) (3.00)

24 credits:

• RELI 6052 Thesis (Judaic Studies) (30.00)

Additional Degree Requirements

Language Requirement. Normally, students acquire knowledge of Hebrew or another Jewish language either before or during the program. Students who intend to pursue graduate studies at the PhD level are especially encouraged to gain proficiency in the language or languages of the primary sources relevant to their proposed research.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is 3 terms of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have satisfied all degree requirements and have a cumulative GPA of at least 2.70.

Religions and Cultures MA

Admission Requirements

- BA or equivalent with high standing in Religious Studies, Judaic Studies or a discipline in the Social Sciences, Humanities, or Fine Arts.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Options. Students are admitted to the Guided Research Paper (GRP) option but can be exceptionally admitted directly to the thesis option. To enter the thesis option, students must normally have completed RELI 6001, 9 credits of electives, and RELI 6022 Research Preparation I and RELI 6023 Research Preparation II. In addition, students must have achieved a minimum GPA of 3.70 or equivalent.

Qualifying program. Applicants with deficiencies in their undergraduate preparation may be required to take a qualifying program. Qualifying program students in the Department of Religions and Cultures must complete their program with a minimum GPA of 3.50 with no courses graded lower than a *B+* to be considered for admission to the graduate program. Qualifying students must reapply to the MA program on completion of their qualifying program.

Transfer Credits. See Transfer Credits in Graduate Admissions section.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Religions and Cultures Courses page for course descriptions.

Religions and Cultures MA (45 credits)

3	credits Core Course: • RELI 6001 Method and Theory in the Study of Religion (3.00)
42	credits chosen from: MA (Religions and Cultures) with Guided Research Paper Option MA (Religions and Cultures) with Thesis Option

MA (Religions and Cultures) with Thesis Option (42 credits)

9	credits of Elective Courses chosen from: Topics in Judaic Studies (MA) Topics in Religions and Cultures (MA) Normally students may not take more than one 3-credit course outside the Department or University.
6	credits: • RELI 6022 Research Preparation I (Religions and Cultures) (3.00) • RELI 6023 Research Preparation II (Religions and Cultures) (3.00)
3	credits: • RELI 6030 Thesis Proposal (Religions and Cultures) (3.00)

24 credits:

• RELI 6032 Thesis (Religions and Cultures) (24.00)

MA (Religions and Cultures) with Guided Research Paper Option (42 credits)

15 credits of Elective Courses chosen from:
Topics in Judaic Studies (MA)
Topics in Religions and Cultures (MA)
Normally students may not take more than two 3-credit courses outside the Department or University.

6 credits:
• RELI 6022 Research Preparation I (Religions and Cultures) (3.00)
• RELI 6023 Research Preparation II (Religions and Cultures) (3.00)

3 credits:

• RELI 6024 Guided Research Paper Proposal (Religions and Cultures) (3.00)

18 credits:

• RELI 6025 Guided Research Paper I (9.00)
• RELI 6026 Guided Research Paper II (Religions and Cultures) (9.00)

Additional Degree Requirements

Language Requirement. Students who intend to pursue graduate studies at the PhD level are encouraged to gain proficiency in the language or languages of the primary sources relevant to their proposed research.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time graduate study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have satisfied all degree requirements and have a cumulative GPA of 2.70.

Religions and Cultures Course Groups (MA)

Topics in Judaic Studies (MA)

- RELI 6012 Selected Topics in Jewish Texts and Literature: Interpretation and Reception (3.00)
- RELI 6013 Selected Topics in Canadian Jewish Studies (3.00)
- RELI 6014 Selected Topics in Jewish Philosophy and Ethics (3.00)
- RELI 6015 Selected Topics in Material and Popular Culture in Judaism (3.00)
- RELI 6017 Selected Topics in Jewish Communities in Historical and Regional Contexts (3.00)
- RELI 6018 Jewish Community Engagement (3.00)

Topics in Religions and Cultures (MA)

- RELI 6001 Method and Theory in the Study of Religion (3.00)
- RELI 6002 Selected Topics in Texts, Literature, and Interpretation (3.00)
- RELI 6003 Selected Topics in Ethnography and Lived Traditions (3.00)
- RELI 6004 Selected Topics in Ethics, Philosophy, and Worldviews (3.00)
- RELI 6005 Selected Topics in Material and Popular Culture (3.00)
- RELI 6006 Selected Topics in Women, Gender, and Sexuality (3.00)
- RELI 6007 Selected Topics in Regional and Intercultural Studies (3.00)
- RELI 6008 Community Engagement (3.00)

Community Economic Development (CED) Graduate Diploma

Admission Requirements

- Undergraduate degree with a minimum GPA of 2.70.
- Two-to-four page personal statement outlining the applicant's field(s) of interest, strengths and weaknesses, expectations and hopes from their studies, how these expectations tie into their personal and professional goals, and what they expect to contribute to a better understanding of community economic development.
- Ability to read, write and express oneself in either English or French.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Each applicant's background, practical experience and learning goals will be fully considered.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits and obtain a minimum GPA of 2.70.

Please see the School of Community and Public Affairs Courses for course descriptions.

Community Economic Development (CED) Graduate Diploma (30 credits)

15 credits of Core Courses:
- SCPA 501 Introduction to Community Economic Development / Introduction au developement économique communautaire (3.00)
- SCPA 502 Comparative Approaches and Models in CED / Approches comparatives et modèles de DÉC (3.00)
- SCPA 503 Fundamental Skills for CED Practice / Compétences de base en DÉC (3.00)
- SCPA 504 Community Organizing and CED / Organisation communautaire et DÉC (3.00)
- SCPA 505 Social Enterprise Development and Social Entrepreneurship / Développement d'entreprises sociales et entreprenariat social (3.00)

3 credits:
- SCPA 543 A-Z Open Sessions / A - Z Sessions ouvertes (1.00)

Note: Students may take multiple 1-credit sessions for a total of three credits.

6 credits:
- SCPA 510 CED Field Project - Part I / Projet en DÉC. Partie I (3.00)
- SCPA 511 CED Field Project - Part II / Projet DÉC. Partie II (3.00)

6 credits of Elective Courses: (chosen based on area of concentration):
- SCPA 508 Financing CED Initiatives: Part I / Le financement des initiatives de DÉC. Partie I (3.00)
- SCPA 509 Financing CED Initiatives: Part II / Le financement des initiatives de DÉC. Partie II (3.00)
- SCPA 515 Housing and Land Use from a CED Perspective: Part I / Logement et aménagement du territoire dans une perspective de DÉC. Partie I (3.00)
- SCPA 516 Housing and Land Use from a CED Perspective: Part II / Logement et aménagement du territoire dans une perspective de DÉC. Partie II (3.00)
- SCPA 522 Communications, Technology and CED: Part I / Communications, technologie et DÉC. Partie I (3.00)
- SCPA 523 Communications, Technology and CED: Part II / Communications, technologie et DÉC. Partie II (3.00)
- SCPA 529 International Development and CED: Part I / Développement international et DÉC. Partie I (3.00)
- SCPA 530 International Development and CED: Part II / Développement international et DÉC. Partie II (3.00)
- SCPA 536 Aboriginal CED: Part I / Le DÉC en mileu autochtone. Partie I (3.00)

• SCPA 537 Aboriginal CED: Part II / Le DÉC en mileu autochtone. Partie II (3.00)

Please see the Développement économique communautaire (DEC), diplôme page for the French version.

Additional Degree Requirements

Progression

A typical progression through the program takes one year (three semesters):

- Fall Semester: three required courses (9 credits) and one open session (1 credit);
- Winter Semester: two required courses (6 credits), first four months of the student's project course (3 credits), and one open session (1 credit);
- Summer Semester: two elective courses from the areas of concentration (6 credits)*, the last four months of the student's project course (3 credits), and one open session (1 credit).

Students may take either two courses (Part I and Part II) in a single area of concentration, or one course (Part I) in two areas of concentration, subject to available resources. (All Part II courses require successful completion of Part I in the same area of concentration).

Language requirements. Students are required to have an excellent knowledge of written and spoken English or French. This program alternates annually between English (years 2020, 2022...) and French (years 2019, 2021...). Students must be able to express themselves in the language in which courses are offered. They can submit written work in either language.

Academic Regulations

1. **Academic Standing**. Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement.** To graduate, students must have completed all course requirements with a cumulative GPA of at least 2.70.

Développement économique communautaire (DEC), diplôme

Conditions d'admission

- Diplôme universitaire de 1er cycle avec une moyenne générale d'au moins 2.70.
- Capacité de lire, écrire et s'exprimer correctement en anglais ou en français.

Conditions d'admission supplémentaires

Présence requise. Les cours sont offerts une fois par mois pendant un long week-end durant les trois trimestres consécutifs du programme. L'option à demi-temps est également disponible.

Les antécédents et les objectifs d'apprentissage de chacun-e des candidat-e-s seront étudiés à fond. Les candidat-e-s doivent soumettre une déclaration personnelle de deux à quatre pages dans laquelle ils/elles décrivent leurs champs d'intérêt spécifiques, leurs forces et leurs faiblesses ce qu'ils/elles espèrent obtenir de leurs études, comment ces attentes sont liées à leurs buts personnels ou professionnels, et en quoi ils/elles comptent contribuer à une meilleure compréhension du DÉC.

Le Diplôme de 2e cycle en DÉC respectera tous les autres critères établis par l'École des études supérieures.

Exigences du programme

Pour obtenir le Diplôme de 2e cycle en DÉC, les étudiant-e-s doivent cumuler un minimum de 30 crédits avec une moyenne générale de 2.70.

Veuillez consulter la page School of Community and Public Affairs Courses pour les descriptions des cours.

Développement économique communautaire (DEC), diplôme (30 credits)

15 crédits des cours obligatoires:
- SCPA 501 Introduction to Community Economic Development / Introduction au developement économique communautaire (3.00)
- SCPA 502 Comparative Approaches and Models in CED / Approches comparatives et modèles de DÉC (3.00)
- SCPA 503 Fundamental Skills for CED Practice / Compétences de base en DÉC (3.00)
- SCPA 504 Community Organizing and CED / Organisation communautaire et DÉC (3.00)
- SCPA 505 Social Enterprise Development and Social Entrepreneurship / Développement d'entreprises sociales et entreprenariat social (3.00)

3 crédits :
- SCPA 543 A-Z Open Sessions / A - Z Sessions ouvertes (1.00)

Les étudiants peuvent suivre plusieurs sessions d'un crédit, pour un total de trois crédits

6 crédits :
- SCPA 510 CED Field Project - Part I / Projet en DÉC. Partie I (3.00)
- SCPA 511 CED Field Project - Part II / Projet DÉC. Partie II (3.00)

6 crédits des cours optionnels (correspondant au champ de spécialisation) :
- SCPA 508 Financing CED Initiatives: Part I / Le financement des initiatives de DÉC. Partie I (3.00)
- SCPA 509 Financing CED Initiatives: Part II / Le financement des initiatives de DÉC. Partie II (3.00)
- SCPA 515 Housing and Land Use from a CED Perspective: Part I / Logement et aménagement du territoire dans une perspective de DÉC. Partie I (3.00)
- SCPA 516 Housing and Land Use from a CED Perspective: Part II / Logement et aménagement du territoire dans une perspective de DÉC. Partie II (3.00)
- SCPA 516 Housing and Land Use from a CED Perspective: Part II / Logement et aménagement du territoire dans une perspective de DÉC. Partie II (3.00)
- SCPA 522 Communications, Technology and CED: Part I / Communications, technologie et DÉC. Partie I (3.00)
- SCPA 523 Communications, Technology and CED: Part II / Communications, technologie et DÉC. Partie II (3.00)

- SCPA 529 International Development and CED: Part I / Développement international et DÉC. Partie I (3.00)
- SCPA 530 International Development and CED: Part II / Développement international et DÉC. Partie II (3.00)
- SCPA 536 Aboriginal CED: Part I / Le DÉC en mileu autochtone. Partie I (3.00)
- SCPA 537 Aboriginal CED: Part II / Le DÉC en mileu autochtone. Partie II (3.00)

Veuillez consulter la page Community Economic Development (CED) Graduate Diploma pour la version angalise.

Exigences du programme supplémentaires

Structure du programme. Un parcours typique se fait en un an (trois trimestres):

- Trimestre d'automne : trois cours obligatoires (9 crédits) et une session ouverte (1 crédit);
- Trimestre d'hiver : deux cours obligatoires (6 crédits), les quatre premiers mois du projet (3 crédits) et une session ouverte (1 crédit);
- Trimestre d'été **:** deux cours correspondant au champ de spécialisation optionnel (6 crédits)*, les quatre derniers mois du projet (3 crédits) et une session ouverte (1 crédit).

Les étudiant-e-s peuvent prendre deux cours dans un champ de spécialisation (Partie I et Partie II) ou un cours (Partie I) dans deux champs de spécialisation, selon les ressources disponibles. (Pour s'inscire dans les cours de la Partie II, il faut avoir complété avec succès la Partie I du même champ de spécialisation).

Les étudiant-e-s doivent maintenir une moyenne générale minimum de 2.70 pendant la durée du programme.

Langues d'enseignement. Les étudiant-e-s doivent maîtriser le français ou l'anglais à l'oral comme à l'écrit. Le programme est offert alternativement en anglais et en français. Le programme est offert en français dans les années impaires 2021, 2023, 2025 et en anglais dans les années paires 2022, 2024, 2026. Les participant-e-s doivent s'exprimer couramment dans la langue d'enseignement utilisée durant l'année où leur programme se donne. Ils/Elles peuvent soumettre leurs travaux écrits en français ou en anglais.

Rendement académique

Voir la section Academic Standing de l'Annuaire pour la Réglementation universitaire.

Durée des études. Les 30 crédits du programme peuvent être effectués en une année (3 sessions) à temps plein ou sur deux ans à temps partiel.

Pour être admissible à un stage de formation, l'étudiante ou l'étudiant doit avoir suivi 12 crédits en traduction pragmatique, 3 crédits en terminologie et avoir obtenu une moyenne générale cumulative d'au moins 3,3 soit *B*+.

Social and Cultural Analysis PhD

Admission Requirements

- MA in sociology or in anthropology, with a minimum cumulative GPA of 3.00, from a recognized university.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

A superior academic record and strong references are both essential. The intended area of research is also a factor as admission is contingent on the availability of an appropriate research supervisor. Applicants who do not have the required background in either one of the disciplines are required to take courses (undergraduate or graduate) before being admitted into the program. The number of credits required varies depending on the student's personal background but are limited to no more than 24 credits.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Sociology and Anthropology Courses page for course descriptions.

Social and Cultural Analysis PhD (90 credits)

12 credits of Required Courses:
- SOAN 800 General Seminar (6.00)
- SOAN 820 Professional Development (3.00)
- SOAN 840 General Seminar (3.00)

6 credits of Elective Courses, chosen from two courses from the lists below:

Anthropology:
- ANTH 600 Identity and Difference (3.00)Note: The subject matter for ANTH 640 and ANTH 641 varies from term to term and
- ANTH 601 Decolonizing Anthropology (3.00)from year to year. Students may re-register for these courses provided that the
- ANTH 610 Ethnographic Research and Ethics (3.00)course content has changed.
- ANTH 620 Writing Ethnography (3.00)
- ANTH 630 New Directions in Anthropological Research (3.00)
- ANTH 640 Special Topics I (3.00)
- ANTH 641 Special Topics II (3.00)

Sociology
- SOCI 602 Issues in Classical Sociological Theory (3.00)
- SOCI 603 Issues in Contemporary Sociological Theory (3.00)
- SOCI 612 Quantitative Research Design and Methods (3.00)
- SOCI 613 Qualitative Research Design and Methods (3.00)
- SOCI 620 Population and Society (3.00)
- SOCI 622 Studies in Race and Ethnicity (3.00)
- SOCI 625 Sociology of Culture (3.00)
- SOCI 626 North American Societies (3.00)
- SOCI 627 Social Movements and Social Change (3.00)
- SOCI 632 Sociology of the Family (3.00)
- SOCI 633 Sociology of Knowledge (3.00)
- SOCI 635 Gender Studies (3.00)
- SOCI 637 Development (3.00)

	• SOCI 638 The City (3.00) • SOCI 639 Social Problems (3.00) • SOCI 640 Community Studies (3.00) • SOCI 642 Studies in Governance (3.00) • SOCI 644 Sociology of the Body (3.00) • SOCI 645 Sociology of Men (3.00) • SOCI 646 Globalization (3.00) • SOCI 647 Democracy and Citizenship (3.00) • SOCI 648 Health, Illness and Medicine (3.00) • SOCI 649 Media and Communication (3.00) • SOCI 652 Self and Subjectivity (3.00) • SOCI 653 Intellectual Biography (3.00) Note: Doctoral students are asked to perform at a higher level as leaders in class discussions and are given more in-depth work in the form of papers and oral presentations.
12	credits: • SOAN 850 Comprehensive Exam I (6.00) • SOAN 860 Comprehensive Exam II (6.00)
3	credits: • SOAN 870 Thesis Proposal (3.00)
57	credits: • SOAN 890 Thesis (57.00)

Additional Degree Requirements

Language Requirement. Given that the bulk of the literature in the two disciplines is written in English and French, reading assignments are given in both languages. Students are required to work towards reading proficiency very quickly. Upon completion of their coursework, students are required to demonstrate reading proficiency in both languages before being permitted to begin the thesis portion of their program. The proficiency level is verified through the administration of a translation test at the end of the coursework period.

In addition, students whose research topic requires the knowledge of a third language are expected to take the necessary courses and demonstrate proficiency in that language before embarking on their research.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum period of residence is two calendar years (6 terms) of full-time graduate study beyond the Master's degree or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Social and Cultural Anthropology MA

Admission Requirements

- Undergraduate degree with honours or specialization in anthropology or joint specialization in anthropology and sociology, with a grade point average of 3.00 (B average) is required. An undergraduate degree with a major in anthropology, with a grade point average of 3.00 (B average) is considered, provided that the background preparation is acceptable.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants who lack certain prerequisite courses may be required to take a qualifying program of up to 12 undergraduate credits in addition to the regular graduate program. For the qualifying program a grade point average of 3.00 (B average) is required.

Applicants with deficiencies in their undergraduate preparation may be required to take up to 24 undergraduate independent credits.

Applications to the program must be accompanied by a preliminary statement (roughly 500 words in length) of the student's intentions regarding research, fieldwork and thesis.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Sociology and Anthropology Courses page for course descriptions.

MA in Social and Cultural Anthropology (45 credits)

45 credits chosen from one of the following options:
MA in Social and Cultural Anthropology with Thesis - Field Research (Option A)
MA in Social and Cultural Anthropology with Thesis - Bibliographic Research (Option B)
Note 1.All students are required to plan courses related to their own interests with the help of advisors.
Note 2. Students registered in Option B are required to take 3 credits of SOCI elective studies.
Note 3.No more than 3 credits of elective studies taken outside the Department of Sociology and Anthropology may be credited towards the degree.

MA in Social and Cultural Anthropology with Thesis - Field Research (Option A) (45 credits)

21 credits of Required Courses:

- ANTH 600 Identity and Difference (3.00)
- ANTH 601 Decolonizing Anthropology (3.00)
- ANTH 610 Ethnographic Research and Ethics (3.00)
- ANTH 620 Writing Ethnography (3.00)
- ANTH 630 New Directions in Anthropological Research (3.00)
- ANTH 660 Professional Development Seminar (3.00)
- ANTH 690 Field Research Proposal (3.00)

3 credits:

- ANTH 6910 Fieldwork: Stage (3.00)

21 credits:

• ANTH 6920 Thesis - Field Research (21.00)

MA in Social and Cultural Anthropology with Thesis - Bibliographic Research (Option B) (45 credits)

15 credits of Required Courses:
- ANTH 600 Identity and Difference (3.00)
- ANTH 601 Decolonizing Anthropology (3.00)
- ANTH 610 Ethnographic Research and Ethics (3.00)
- ANTH 630 New Directions in Anthropological Research (3.00)
- ANTH 660 Professional Development Seminar (3.00)

6 credits of Elective Courses

24 credits:
- ANTH 693 Bibliographic Research Proposal (3.00)
- ANTH 6940 Bibliographic Research (3.00)
- ANTH 6950 Thesis - Bibliographic Research (18.00)

Additional Degree Requirements

Credits. Additional courses may be taken from outside the program, subject to the advice and approval of the student's supervisor or the Graduate Program Director.

Supervision. Students are assigned an interim advisor upon admission. Students in the thesis option must select their permanent advisor by the beginning of the second term, along with a second committee member. Their thesis is evaluated by the two-person committee and a third examiner. Students in the non-thesis option select a permanent advisor by the beginning of the second term, and their final research papers are evaluated by the advisor and a second examiner.

Language Requirement. A working knowledge of English and French is recommended, although written work may be submitted in either language. Where appropriate, students are encouraged to acquire competence in the language of the community they choose to study; this may be achieved in the context of ANTH 640.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum period of residence is two calendar years (6 terms) of full-time graduate study beyond the Master’s degree or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits. The thesis option is designed to be completed in two years. The non-thesis option can be completed in 12 months.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Sociology MA

Admission Requirements

- Solid undergraduate preparation with a range of competence similar to that demanded of Major students at Concordia, and a minimum *B* average in their undergraduate studies.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.
- **Language Requirements.** Thesis proposals which depend on special linguistic skills will be accepted only from students competent in the appropriate languages.

Additional Admission Requirements

Qualified applicants requiring prerequisite courses may be required to take up to 12 undergraduate credits in addition to and as a part of the regular graduate program. Admission into the program is on recommendation of the Graduate Studies Committee.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Sociology and Anthropology Courses page for course descriptions.

Sociology MA (45 credits)

45 credits chosen from one of the following options:
MA in Sociology with Thesis - Primary Research (Option A)
MA in Sociology with Thesis - Bibliographic Research (Option B)

Additional courses may be taken from outside the program, subject to the advice and approval of the students supervisor or the Graduate Program Director.

MA in Sociology with Thesis - Primary Research (Option A) (45 credits)

18 credits of Required Courses:

- SOCI 602 Issues in Classical Sociological Theory (3.00)
- SOCI 603 Issues in Contemporary Sociological Theory (3.00)
- SOCI 612 Quantitative Research Design and Methods (3.00)
- SOCI 613 Qualitative Research Design and Methods (3.00)
- SOCI 660 Professional Development Seminar (3.00)
- SOCI 690 Research Proposal (3.00)

6 credits of Elective Courses chosen from the Sociology MA Selected Topics list

21 credits:

- SOCI 691 Thesis - Primary Research (21.00)

MA in Sociology with Thesis - Bibliographic Research (Option B) (45 credits)

15 credits of Required Courses:

- SOCI 602 Issues in Classical Sociological Theory (3.00)
- SOCI 603 Issues in Contemporary Sociological Theory (3.00)
- SOCI 612 Quantitative Research Design and Methods (3.00)
- SOCI 613 Qualitative Research Design and Methods (3.00)
- SOCI 660 Professional Development Seminar (3.00)

12 credits of Elective Courses chosen from the Sociology MA Selected Topics list

18 credits:

- SOCI 695 Thesis - Bibliographic Research (18.00)

Sociology MA Selected Topics

- SOCI 601 Topics in Advanced Theory (3.00)
- SOCI 611 Topics in Advanced Methodology (3.00)
- SOCI 620 Population and Society (3.00)
- SOCI 622 Studies in Race and Ethnicity (3.00)
- SOCI 625 Sociology of Culture (3.00)
- SOCI 626 North American Societies (3.00)
- SOCI 627 Social Movements and Social Change (3.00)
- SOCI 632 Sociology of the Family (3.00)
- SOCI 633 Sociology of Knowledge (3.00)
- SOCI 635 Gender Studies (3.00)
- SOCI 637 Development (3.00)
- SOCI 638 The City (3.00)
- SOCI 639 Social Problems (3.00)
- SOCI 640 Community Studies (3.00)
- SOCI 642 Studies in Governance (3.00)
- SOCI 644 Sociology of the Body (3.00)
- SOCI 645 Sociology of Men (3.00)
- SOCI 646 Globalization (3.00)
- SOCI 647 Democracy and Citizenship (3.00)
- SOCI 648 Health, Illness and Medicine (3.00)
- SOCI 649 Media and Communication (3.00)
- SOCI 652 Self and Subjectivity (3.00)
- SOCI 653 Intellectual Biography (3.00)
- SOCI 650 Special Topic in Sociology I (3.00)
- SOCI 651 Special Topic in Sociology II (3.00)

Additional Degree Requirements

Credits. Additional courses may be taken from outside the program, subject to the advice and approval of the student's supervisor or the Graduate Program Director.

Supervision. Students are assigned an interim advisor upon admission. Students in the thesis option must select their permanent advisor by the beginning of the second term, along with a second committee member. Their thesis is evaluated by the two-person committee and a third examiner. Students in the non-thesis option select a permanent advisor by the beginning of the second term, and their final research papers are evaluated by the advisor and a second examiner.

Language Requirement. A working knowledge of English and French is recommended, although written work may be submitted in either language. Where appropriate, students are encouraged to acquire competence in the language of the community they choose to study; this may be achieved in the context of ANTH 640

Note 1. All students are required to plan courses related to their own interests with the help of advisors.
Note 2. All students are required to take 3 credits of SOCI elective studies.
Note 3. No more than 3 credits of elective studies taken outside the Department of Sociology and Anthropology may be credited towards the degree.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum period of residence is two calendar years (6 terms) of full-time graduate study beyond the Master's degree or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Theological Studies MA

Admission Requirements

- Solid undergraduate preparation with a range of competence similar to that demanded of Major students at Concordia, and a minimum *B* average in their undergraduate studies.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.
- **Language Requirements.** Thesis proposals which depend on special linguistic skills will be accepted only from students competent in the appropriate languages.

Additional Admission Requirements

Qualified applicants requiring prerequisite courses may be required to take up to 12 undergraduate credits in addition to and as a part of the regular graduate program. Admission into the program is on recommendation of the Graduate Studies Committee.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Theological Studies Courses page for course descriptions.

Theological Studies MA (45 credits)

45 credits chosen from one of the following options:
Theological Studies MA Option A: MA with Thesis
Theological Studies MA Option B: MA with Applied Project in Theology

Theological Studies MA Option A: MA with Thesis (45 credits)

15 credits of Required Courses:
- THEO 603 Method in Theology (3.00)
- THEO 604 Theological Hermeneutics (3.00)
- THEO 605 Methods in Biblical Studies (3.00)
- THEO 690 Annotated Bibliography and Thesis Proposal (6.00)

9 credits of Theology MA Elective Courses

21 credits:
- THEO 697 Thesis (21.00)

Theological Studies MA Option B: MA with Applied Project in Theology (45 credits)

9 credits of Required Courses:
- THEO 603 Method in Theology (3.00)
- THEO 604 Theological Hermeneutics (3.00)
- THEO 605 Methods in Biblical Studies (3.00)

18 credits of Theology MA Elective Courses

18 credits:

- THEO 6910 Research Paper Preparation (3.00)
- THEO 6911 Research Paper (6.00)
- THEO 6920 Applied Project in Theology Preparation (3.00)
- THEO 6921 Applied Project in Theology (6.00)

Theology MA Elective Courses

- THEO 621 Old Testament I (3.00)
- THEO 623 Old Testament II (3.00)
- THEO 627 Questions in Old Testament Research (3.00)
- THEO 629 Intertestament Studies (3.00)
- THEO 631 New Testament I (3.00)
- THEO 633 New Testament II (3.00)
- THEO 635 New Testament III (3.00)
- THEO 637 Questions in New Testament Research (3.00)
- THEO 639 Biblical Studies (3.00)
- THEO 641 History I (3.00)
- THEO 643 History II (3.00)
- THEO 645 History III (3.00)
- THEO 647 Research in History of Christian Thought (3.00)
- THEO 649 Questions in Christian Worship (3.00)
- THEO 651 Theology I (3.00)
- THEO 653 Theology II (3.00)
- THEO 655 Theology III (3.00)
- THEO 657 Questions in Theological Research (3.00)
- THEO 661 Ecclesiology I (3.00)
- THEO 663 Ecclesiology II (3.00)
- THEO 664 Ecclesiology III (3.00)
- THEO 667 Research In Ecclesiology (3.00)
- THEO 669 Theology & World Religions (3.00)
- THEO 671 Ethics I (3.00)
- THEO 673 Ethics II (3.00)
- THEO 675 Issues in Ethical Research (3.00)

21 credits:

- THEO 697 Thesis (21.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum period of residence is two calendar years (6 terms) of full-time graduate study beyond the Master's degree or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Fine Arts Programs

Art Education Programs

- **Doctor/Doctorate**
 - Art Education PhD
- **Master/Magisteriate**
 - Art Education MA

Art History Programs

- **Doctor/Doctorate**
 - Art History PhD
- **Master/Magisteriate**
 - Art History MA

Creative Arts Therapies Programs

- **Master/Magisteriate**
 - Creative Arts Therapies (Art Therapy Option) MA
 - Creative Arts Therapies (Drama Therapy Option) MA
 - Creative Arts Therapies (Music Therapy) MA
- **Graduate Diploma**
 - Music Therapy Graduate Diploma
- **Graduate Certificate**
 - Play Therapy Graduate Certificate

Design Programs

- **Master/Magisteriate**
 - Design MDes
- **Graduate Certificate**
 - Digital Technologies in Design Art Practice Graduate Certificate

Interdisciplinary Programs in Fine Arts

- **Graduate Certificate**
 - Creative Practices in Technical Production for Live Performance Graduate Certificate

Music Programs

- **Graduate Diploma**
 - Advanced Music Performance Studies Graduate Diploma

Mel Hoppenheim School of Cinema Programs

- **Doctor/Doctorate**

- Film and Moving Image Studies PhD

- **Master/Magisteriate**
 - Cinematic Arts MFA
 - Film and Moving Image Studies MA

Studio Arts Programs

- **Master/Magisteriate**
 - Studio Arts MFA

Art Education PhD

Admission Requirements

- MA in Art Education with superior standing from a recognized university.
- Candidate possessing an MFA must also complete the art education readings and research methods courses of the MA in Art Education.
- Teaching experience, certification or related professional experience.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

This program is recognized by the Quebec Ministry of Education for purposes of perfectionnement.

Degree Requirements

Fully-qualified applicants entering the program with a master's degree are required to complete a minimum of 90 credits.

For course descriptions, please see the Art Education Courses page.

Art Education PhD (90 credits)

12	credits of Required Courses: • ARTE 870 Critical Perspectives on Art Education: History, Theory and Practice (3.00) • ARTE 872 Advanced Critical Analysis (3.00) • ARTE 882 Research Practice (3.00) • ARTE 884 Doctoral Seminar (3.00)
15	credits from course work and independent study in art education and/or relevant disciplines, to complement their research and professional interests. These courses must be approved by the student's program advisor and the graduate program director.
63	credits: • ARTE 883 Comprehensive Examination (0.00) • ARTE 890 Research and Thesis (63.00)

Additional Degree Requirements

Admission to Candidacy. Upon approval of the thesis proposal by the Thesis Advisory Committee, the student is officially admitted to candidacy for the degree.

Program Advisors and Thesis Supervisors. Upon admission to the program, each student is assigned to a graduate faculty member, who serves as Program Advisor until the student passes the Comprehensive Examination. After completing the Comprehensive Exam, the student selects a Thesis Supervisor from the available Graduate Program Faculty.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement for the degree is two years of full-time study or the equivalent in part-time study. One of these residence years may be taken on a part-time basis. The year of full-time study may be the year of writing a dissertation.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.

4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Art Education MA

Admission Requirements

- Bachelor of Fine Arts or a Bachelor of Arts with specialization in art education or its equivalent.
- Overall grade average of B or better.
- Experience in the teaching of art or art-related subjects.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Art Education Courses page for course descriptions.

Art Education MA (45 credits)

45 credits chosen from one of the following options:
Art Education MA Option A: Thesis
Art Education MA Option B: Course-based

Art Education MA Option A: Thesis (45 credits)

Suitable for students seeking to develop in-depth research expertise and whose goals include doctoral studies and/or research-oriented professional positions.

12 credits of Required Courses:
- ARTE 670 Critical Perspectives on Art Education History: History, Theory and Practice (3.00)
- ARTE 672 Advanced Critical Analysis (3.00)
- ARTE 680 Foundations for Inquiry (3.00)
- ARTE 682 Research Practice (3.00)

3 credits of Art Education Special Topics Courses (A-Z):
- ARTE 660 Selected Topics in Art Education (3.00)

6 credits of Elective Courses chosen from additional ARTE 660 courses or from Art Education Topics in Studio Inquiry Courses

24 credits:
- ARTE 698 Thesis (24.00)

Art Education MA Option B: Course-based (45 credits)

Suitable for students who seek advanced levels of professional development rather than in-depth training as researchers.

12 credits of Required Courses:
- ARTE 670 Critical Perspectives on Art Education History: History, Theory and Practice (3.00)
- ARTE 672 Advanced Critical Analysis (3.00)
- ARTE 680 Foundations for Inquiry (3.00)
- ARTE 682 Research Practice (3.00)

12	credits of Art Education Special Topics Courses (A-Z): • ARTE 660 Selected Topics in Art Education (3.00) Note: Students may repeat ARTE 660 multiple times for credit, provided the subject matter is different each time.
6	credits of Art Education Topics in Studio Inquiry Courses
15	credits of Elective Courses selected in consultation with the Program Advisor and approved by the Graduate Program Director. Some restrictions apply; for more details consult the department. This may include up to 12 additional credits from the Art Education Topics in Studio Inquiry Courses list.

Art Education Topics in Studio Inquiry Courses

- ARTE 606 Topics in Studio Inquiry (3.00)
- ARTE 607 Topics in Studio Inquiry (3.00)
- ARTE 608 Topics in Studio Inquiry (3.00)
- ARTE 609 Topics in Studio Inquiry (3.00)
- ARTE 610 Topics in Studio Inquiry (3.00)
- ARTE 611 Topics in Studio Inquiry (3.00)

Additional Degree Requirements

Program Advisors and Thesis Supervisors. Upon admission to the program, each student is assigned to a graduate faculty member, who serves as program advisor. Each student in the Thesis Option selects a thesis supervisor and thesis advisory committee from the available graduate program faculty.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Art History PhD

Admission Requirements

- Master of Arts degree in Art History or its equivalent.
- Thesis research project accompanied by a letter of support from the proposed supervisor in the Department of Art History. Prospective students should therefore contact individual professors, or the Graduate Program Director, to find the right supervisor for their doctoral research project.
- **Language Requirements.** This is a bilingual interuniversity program, offered jointly with the Université de Montréal and the Université du Québec à Montréal. Students may successfully complete all of its various components in English, in French, or in a combination of both languages. Applicants are therefore required to be fully proficient in English or French. Please refer to the English language proficiency page for further information on requirements and exemptions.

Requirements

Courses. The courses offered through the interuniversity program are open to all students, regardless of the university at which they are enrolled. All students must take at least 3 credits from Block A. The remaining 9 credits are normally chosen from Block A or Block B. Requests to register in a seminar outside the program require the approval of the supervisor and the Graduate Program Director.

Language Proficiency. In addition to the requirements for admission, candidates are required to demonstrate their understanding of another language relevant to their doctoral studies.

Degree Requirements

Fully qualified candidates entering the program with a Master's degree are required to complete 90 credits.

Please see the Art History Courses page for course descriptions.

Art History PhD (90 credits)

3	credits chosen from Art History PhD Block A Seminars
9	credits chosen from Art History PhD Block A Seminars or Art History PhD Block B Seminars
78	credits: • ARTH 807 Doctoral Forum (3.00) • ARTH 808 Comprehensive Examinations (9.00) • ARTH 820 Research Tutorial (6.00) • ARTH 830 Thesis (60.00)

Art History PhD Block A Seminars

- ARTH 809 A1: Art History and Its Methodologies (3.00)
- ARTH 810 A2: Problématiques de l'histoire de l'art (3.00)

Art History PhD Block B Seminars

- ARTH 801 B1: Periods and Territories (3.00)
- ARTH 802 B2: Classification - Genres, Artistic Disciplines (3.00)
- ARTH 803 B3: Thematic Questions (3.00)
- ARTH 804 B4: Writings on Art (3.00)
- ARTH 805 B5: Critical Examination of Artistic Context (3.00)

- ARTH 806 B6: Formal and Semantic Studies (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residency.** The minimum required residency is three consecutive semesters.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. Graduation Requirement. In order to graduate, students must have a cumulative GPA of 3.00.

Art History MA

Admission Requirements

- BFA or a BA with a major in Art History or approved equivalent with at least a B+ average in the major area.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants with deficiencies in their undergraduate preparation may be required to take a qualifying program prior to formal entry into the program. Qualified applicants lacking prerequisite courses may be required to take up to 12 undergraduate credits in addition to and as part of the regular graduate program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Art History Courses page for course descriptions.

Art History MA (45 credits)

6	credits of Required Courses: • ARTH 654 Annotated Review of Sources and Documents (3.00) • ARTH 655 Thesis Seminar (3.00)
15	credits of seminars selected in consultation with the graduate program director or the student's supervisor. Exceptionally, and with the approval of the Graduate Program Director, students may register for one of the following options: 1) a graduate seminar (3 credits) in another discipline or at another Quebec university, 2) an internship or 3) an independent study.
24	credits: • ARTH 656 Thesis (24.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residency.** The minimum residency requirement is three terms of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits. Students are encouraged to complete the degree within 6 terms (2 years).
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Creative Arts Therapies (Art Therapy Option) MA

Admission Requirements

- Bachelor's degree with 24 credits in visual arts (18 credit in studio arts and 6 credits in art history, art theory, art education or approved equivalents); 24 credits in psychology (must include courses in Introductory, Developmental and Abnormal Psychology, Theories of Personality, and Research Methodology, or approved equivalents); and An Introduction to Art Therapy (3 credits).
- Overall grade average of B or better is expected.
- Previous work experience in a clinical, rehabilitative or educational setting is expected.
- Direct experience with the therapeutic process is highly desirable.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Degree Requirements

Fully-qualified candidates are required to complete 60 credits.

Please see the Creative Arts Therapies Courses page for course descriptions.

Creative Arts Therapies (Art Therapy Option) MA (60 credits)

45 credits of Core Courses:
- ATRP 600 Readings in Art Therapy (3.00)
- ATRP 602 Assessment Techniques in Art Therapy (3.00)
- ATRP 603 Symbolic Imagery and Art Therapy - Studio/Workshop (3.00)
- ATRP 604 Group and Family Art Therapy (3.00)
- CATS 610 Introduction to Topics in Clinical Psychology for Creative Arts Therapists (3.00)
- ATRP 613 Art Therapy Practicum Supervision I (3.00)
- ATRP 614 Art Therapy Practicum Supervision II (3.00)
- ATRP 620 Art Therapy Advanced Clinical Skills (3.00)
- ATRP 623 Advanced Art Therapy Practicum Supervision I (3.00)
- ATRP 630 Child and Adolescent Art Therapy (3.00)
- CATS 639 Interdisciplinary Topics: Cross-cultural Competence in the Creative Arts Therapies (1.00)
- CATS 641 Interdisciplinary Topics: Ethics in Clinical Practice in the Creative Arts Therapies (1.00)
- CATS 643 Interdisciplinary Topics: Ethics in Research in the Creative Arts Therapies (1.00)
- CATS 691 Research in the Creative Arts Therapies (3.00)
- ATRP 693 Research in Art Therapy (3.00)

6 credits of Elective Courses chosen in consultation with an academic faculty advisor, are required of all candidates. With the approval of the Chair of Creative Arts Therapies and that of the cooperating department, some or all of the elective credits may be chosen from other graduate programs in the Faculty of Fine Arts, in other faculties at Concordia, or other universities.

9 credits chosen from one of the following:
Research Paper Stream: Creative Arts Therapies (Art Therapy Option)
Applied Research Project Stream: Creative Arts Therapies (Art Therapy Option)

Applied Research Project: Creative Arts Therapies (Art Therapy Option) (9 credits)

9 credits:
- CATS 698 Applied Research Project with Report (6.00)
- CATS 699 Comprehensive Exam (3.00)

Research Paper: Creative Arts Therapies (Art Therapy Option) (9 credits)

9 credits:

- CATS 689 Research Paper (9.00)

Additional Degree Requirements

Residence. The minimum residence requirement is two years (5 terms) of full-time study, or the equivalent in part-time study.

Practicum. In addition to the credit requirements, and as stipulated by the professional program approval associations (the American Art Therapy Association and the Canadian Art Therapy Association), each student must successfully complete a minimum of 800 hours (350 direct client contact hours and 450 agency hours) in the practice of art therapy, under faculty supervision, in an approved practicum setting. The program emphasizes experience with individual, group, and family formats for therapeutic interventions. Students work with different client populations during the first and second year of the practicum.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is two years (5 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have obtained a cumulative GPA of at least 2.70.

Creative Arts Therapies (Drama Therapy Option) MA

Admission Requirements

- Bachelor's degree with courses in Theatre (24 credits or approved equivalents): Psychology (24 credits, which must include courses in Introductory, Developmental, and Abnormal Psychology, Theories of Personality, and a research methodology course to be approved by an academic faculty advisor, or approved equivalents); and An Introduction to Drama Therapy (3 credits).
- No less than a B average (3.00 on a 4.30 scale) or equivalent.
- Documented involvement in drama and theatre.
- Previous work experience in a clinical, rehabilitative, or educational setting.
- Direct experience with the therapeutic process is highly desirable.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Since enrolment is limited, applicants are selected on the basis of a past academic record of no less than a B average, a 500-word letter of intent, and three letters of recommendation.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 60 credits.

Please see the Creative Arts Therapies Courses page for course descriptions.

Creative Arts Therapies (Drama Therapy Option) MA (60 credits)

45 credits of Core Courses
- DTHY 600 Current Approaches to Drama Therapy (3.00)
- DTHY 693 Research in Drama Therapy (3.00)
- DTHY 603 Improvisation and Drama Therapy - Studio/Workshop (3.00)
- DTHY 604 Drama Therapy and Groups (3.00)
- CATS 610 Introduction to Topics in Clinical Psychology for Creative Arts Therapists (3.00)
- CATS 611 Counselling Skills for Creative Arts Therapists (3.00)
- DTHY 613 Drama Therapy Practicum Supervision I (3.00)
- DTHY 614 Drama Therapy Practicum Supervision II (3.00)
- DTHY 623 Advanced Drama Therapy Practicum Supervision I (3.00)
- DTHY 624 Advanced Drama Therapy Practicum Supervision II (3.00)
- CATS 639 Interdisciplinary Topics: Cross-cultural Competence in the Creative Arts Therapies (1.00)
- CATS 641 Interdisciplinary Topics: Ethics in Clinical Practice in the Creative Arts Therapies (1.00)
- CATS 643 Interdisciplinary Topics: Ethics in Research in the Creative Arts Therapies (1.00)
- DTHY 643 Sociodrama and Psychodrama (3.00)
- DTHY 644 Child and Adolescent Drama Therapy (3.00)
- DTHY 645 Assessment in Drama Therapy (3.00)
- CATS 691 Research in the Creative Arts Therapies (3.00)

6 Elective credits chosen in consultation with an academic faculty advisor. With the approval of the Chair of Creative Arts Therapies and that of the cooperating department, some or all of the elective credits may be chosen from other graduate programs in the Faculty of Fine Arts, other faculties at Concordia University, or other universities.

9	Additional credits chosen from one of two streams of research: Creative Arts Therapies (Drama Therapy Option) MA Research Paper Stream: Creative Arts Therapies (Drama Therapy Option) or Creative Arts Therapies (Drama Therapy Option) MA Applied Research Project Stream: Creative Arts Therapies (Drama Therapy Option)

Research Paper Creative Arts Therapies (Drama Therapy Option) (9 credits)

9	credits: • CATS 689 Research Paper (9.00)

Applied Research Project: Creative Arts Therapies (Drama Therapy Option) (9 credits)

9	credits: • CATS 698 Applied Research Project with Report (6.00) • CATS 699 Comprehensive Exam (3.00)

Additional Degree Requirements

Practicum. In addition to the credit requirements, and as stipulated by the professional program approval of the National Association for Drama Therapy, each student must successfully complete a minimum of 800 hours (350 direct client contact hours and 450 agency hours) in the practice of drama therapy, under faculty supervision, in an approved practicum setting. The program emphasizes experience with individual, group, and family formats for therapeutic interventions. Students work with different client populations during the first and second year of the practicum.

Language Requirements. While there are no formal language requirements, students intending to work in Quebec are strongly encouraged to develop a working knowledge of French.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is two years (5 terms) of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have obtained a cumulative GPA of at least 2.70.

Creative Arts Therapies (Music Therapy) MA

Admission Requirements

- Bachelor's degree in Music Therapy with a 1,000-hour internship (or equivalent); OR a Graduate Certificate or Diploma in Music Therapy (or equivalent).
- No less than a B average (3.00 on a 4.30 scale), or equivalent.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants are selected on the basis of a past academic record of no less than a B average (3.00 on a 4.30 scale), or equivalent, a 500-word letter of intent, a curriculum vitae, and three letters of recommendation.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Creative Arts Therapies Courses page for course descriptions.

Creative Arts Therapies (Music Therapy) MA Research with Thesis Option (45 credits)

18 credits of Core Courses
- MTHY 600 Music Therapy Advanced Literature (3.00)
- MTHY 601 Music Therapy Supervision, Teaching, and Learning (3.00)
- MTHY 602 Advanced Clinical Improvisation in Music Therapy I (1.50)
- MTHY 603 Advanced Clinical Improvisation in Music Therapy II (1.50)
- MTHY 693 Research in Music Therapy: Qualitative and Quantitative Methods (3.00)
- CATS 639 Interdisciplinary Topics: Cross-cultural Competence in the Creative Arts Therapies (1.00)
- CATS 641 Interdisciplinary Topics: Ethics in Clinical Practice in the Creative Arts Therapies (1.00)
- CATS 643 Interdisciplinary Topics: Ethics in Research in the Creative Arts Therapies (1.00)
- CATS 691 Research in the Creative Arts Therapies (3.00)

27 credits chosen from one of the following:
MA Research with Thesis Option: Creative Arts Therapies (Music Therapy)
Advanced Music Therapy Practice Option: Creative Arts Therapies (Music Therapy) MA

MA Research with Thesis Option: Creative Arts Therapies (Music Therapy) (27 credits)

6 credits Advanced Music Therapy Practicum:
- MTHY 623 Advanced Music Therapy Practicum I (3.00)
- MTHY 624 Advanced Music Therapy Practicum II (3.00)

21 credits:
- MTHY 699 Thesis (21.00)

Advanced Music Therapy Practice Option: Creative Arts Therapies (Music Therapy) MA (27 credits)

12 credits Advanced Music Therapy Practice:
- MTHY 633 Advanced Music Therapy Practice I (6.00)
- MTHY 634 Advanced Music Therapy Practice II (6.00)

9	credits of Elective Courses chosen in consultation with the program coordinator.
6	credits: • MTHY 698 Music Therapy Advanced Capstone Project (6.00)

Additional Degree Requirements

French Language Requirements. While there are no formal French proficiency requirements, students intending to work in Québec are strongly encouraged to develop a working knowledge of French.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum required residency is three consecutive terms full-time study or the equivalent in part-time study.
3. **Time Limit**. Please refer to the Academic Regulations page for further details regarding the Time Limits. It is expected that students will normally complete the proposed program within 3 terms (1 year) of full-time study from the time of initial registration in the program.
4. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

Music Therapy Graduate Diploma

Admission Requirements

- Bachelor's degree with courses in Music (24 credits, which must include 6 credits in Musicology and 12 credits in Music Theory, or equivalents); Psychology (24 credits, which must include courses in Introductory, Developmental, and Abnormal Psychology, Theories of Personality, and Research Methodology, or equivalents); and Introduction to Music Therapy (3 credits), or equivalent.
- Evidence of primary instrument/voice performance abilities at the level of completion of a bachelor's degree in Music; piano performance abilities at Grade 6 Royal Conservatory of Music level, and fundamental guitar and voice skills.
- Overall grade average of B- or better is expected.
- Previous experience in a clinical, rehabilitative or educational setting.
- Direct experience with the therapeutic process is highly desirable.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Proficiency in French. While there are no formal French proficiency requirements, students intending to work in Québec are strongly encouraged to develop a working knowledge of French.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 28 credits.

Please see the Creative Arts Therapies Courses page for course descriptions.

Music Therapy Graduate Diploma (28 credits)

28 credits of Core Courses:
- MTHY 501 Music Therapy Skills (3.00)
- MTHY 502 Psychology of Music (2.00)
- MTHY 503 Music Therapy with Adults (1.00)
- MTHY 504 Music Therapy with Children and Adolescents (1.00)
- MTHY 510 Music Therapy Practicum I (3.00)
- MTHY 511 Music Therapy Practicum II (3.00)
- MTHY 512 Music Therapy Practicum III (9.00)
- MTHY 521 Clinical Improvisation in Music Therapy (3.00)
- CATS 611 Counselling Skills for Creative Arts Therapists (3.00)

As part of course requirements in MTHY 510, MTHY 511, and MTHY 512, each student must successfully complete a minimum of 1,200 hours in the practice of music therapy, under faculty supervision, in approved practicum settings. Practicum experiences include individual and group formats with children, adolescents and adults and with a minimum of three different client groups.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits. It is expected that students normally complete the graduate diploma program within one year.

3. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 3.00.

Play Therapy Graduate Certificate

Admission Requirements

- Bachelor's degree in Psychology, Social Work, Youth Work, Child Studies, Early Childhood and Elementary Education, Teaching and other related fields in the provision of mental health or educational services, or equivalent.
- Applicants lacking a relevant undergraduate degree but able to demonstrate evidence of a professional background, including experience working with children in emotional distress within health, social or educational services may be considered for admission on a case by case basis.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 15 credits.

Please see the Creative Arts Therapies Courses page for course descriptions.

Play Therapy Graduate Certificate (15 credits)

15 credits of Core Courses

- PLTH 501 Play Therapy 1 Introduction to Play Therapy (3.00)
- PLTH 502 Play Therapy 2 Cognitive Behavioural Child-Centered Play Therapy (3.00)
- PLTH 503 Play Therapy 3 Child-Centered Group Play Therapy (3.00)
- PLTH 504 Play Therapy 4 Relational Play Therapy and Filial Play Therapy (3.00)
- PLTH 505 Play Therapy 5 Neurobiology and Attachment in Play Therapy (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits. It is expected that students will normally complete the certificate within one year.
3. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

Design MDes

Admission Requirements

- Undergraduate degree or graduate diploma in design or equivalent in a relevant undergraduate degree program.
- High academic standing, with a minimum cumulative GPA of 3.00 on a scale of 4.30.
- Portfolio of creative work, writing samples, a letter of intent and a five-page preliminary research proposal.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants with non fine arts degrees must demonstrate technical and artistic/scholarly competence in their desired research area and must exhibit a strong foundation in design practices from an interdisciplinary perspective. Qualified applicants requiring prerequisite courses may be required to take such courses in addition to their regular graduate program.

The letter of intent should contain a well-articulated description of the potential research foci, indicating a relevant contribution to design or design scholarship. The accompanying preliminary research proposal should include well-formulated research questions, addressing the theoretical frameworks in which question will be addressed, potential outcomes, and a justification of the relevance of the topic. The proposal must also include an assessment of the feasibility of the proposed research over three consecutive semesters, demonstrating evidence of knowledge and skills relevant to the program and proposed area of concentration. Admission is contingent on the availability of an appropriate faculty member in the Department of Design and Computation Arts who agrees to serve as thesis supervisor. Applicants are encouraged to select a supervisor in advance, before admission. In special circumstances, the supervisor can be selected at the latest by the end of the first semester.

In addition to the proposal documentation, applicants must arrange for official transcripts from all previous post-secondary studies and three letters of reference (at least two from academic sources) to be sent. Following initial review of the application dossiers, selected candidates will be invited to interview with the Admissions Committee. Local residents are expected to appear in person while remote applicants will have the option to be interviewed through teleconferencing or video conferencing. It is incumbent upon remote applicants to make financial arrangements should they choose to attend the interview in person.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Design Courses page for course descriptions.

Design MDes (45 credits)

15	credits of Core Courses • DART 600 Design Theory/Practice I (3.00) • DART 601 Research Methods in Design (3.00) • DART 610 Design Theory/Practice II (3.00) • DART 611 Interdisciplinary Practices in Design (3.00) • DART 620 Graduate Colloquium (3.00)
6	credits of Elective Courses taken from the special topics courses offered by the Department
24	credits: • DART 690 Master’s Research and Thesis (24.00)

Additional Degree Requirements

Students with a cumulative GPA of 3.70 or higher may apply for a Directed Study or Professional Internship.

Language Requirements. While there are no formal language requirements, students intending to work in Quebec are strongly encouraged to develop a working knowledge of French.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum required residency is three consecutive semesters of full-time study, or the equivalent in part-time study.
3. **Expected Time to Completion and Time Limit.** It is expected that full-time students will complete all work for a master's degree within 6 terms (2 years) from the time of initial registration in the program at Concordia University. For part-time students, the expected time to completion is 9 terms (3 years). Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have obtained a cumulative GPA of at least 2.70.

Digital Technologies in Design Art Practice Graduate Certificate

Note: Admissions have been suspended.

Admission Requirements

- Undergraduate degree, or equivalent.
- Description of a research project to be undertaken in the program.
- Portfolio
- Applicants may be invited for an interview.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants who do not have a Design or Art degree, may be required to take prerequisites or additional courses.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 15 credits.

Please see the Design Courses page for course descriptions.

Digital Technologies in Design Art Practice Graduate Certificate (15 credits)

6 credits:
- DART 500 Individual Research Project (6.00)

9 credits of Group Seminars
- DART 502 Language, Politics, Manifestos - Reading Seminar (3.00)
- DART 503 Theories of Interactivity (3.00)
- DART 504 Contextualizing Design Practice (3.00)

In exceptional circumstances, students may substitute DART 510 for one of DART 502, DART 503 or DART 504
- DART 510 Independent Study (3.00)

Participants are expected to finish the program in the Fall/Winter semesters.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits. It is expected that students will normally complete the certificate within one year.
3. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

Note: Admissions have been suspended.

Creative Practices in Technical Production for Live Performance Graduate Certificate

Note: Admissions have been suspended.

Admission Requirements

- Advanced training or experience.
- Bachelor's degree in the performing arts or related technical field with a minimum GPA of 2.70.
- Be creative, critical and collaborative thinkers, capable of adapting and applying disparate techniques towards the goal of achieving a strong artistic vision
- Basic knowledge and practical skills from chosen discipline.
- Be self-motivated and possess a strong desire to learn new ways to work with artists.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Programs

The program does not normally accept part-time students.

Applicants must submit a 500-word letter of intent, clearly outlining their particular area of interest, an overview of their past experience and what they wish to learn throughout the 12-month program, a curriculum vitae, and three letters of recommendation.

In addition to the normal admission process of Concordia University, all applicants are required to arrange their appointments and obtain detailed information regarding interviews and letter of intent by contacting the Program Director.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 21 credits.

Creative Practices in Technical Production for Live Performance Graduate Certificate (21 credits)

9 credits of Core Courses
- CPTP 501 Connections (3.00)
- CPTP 502 The Art of Proficiency (3.00)
- CPTP 503 Aspects of Visual, Aural and Performing Arts (3.00)

9 credits of Practical Study
- CPTP 511 Practical Study I (3.00)
- CPTP 512 Practical Study II (3.00)
- CPTP 513 Practical Study III (3.00)

3 credits of Elective Courses
- CPTP 514 Practical Study IV (3.00)
- CPTP 598 Special Topics in Creative Practices in Technical Production (3.00)

Each candidate's program of practical study will be chosen in consultation with the Graduate Certificate Program Director.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic

Regulations.

2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits. It is expected that students will normally complete the certificate within one year.
3. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

Advanced Music Performance Studies Graduate Diploma

Note: Admissions have been suspended.

Admission Requirements

- Highly developed skills in performance.
- Bachelor's degree in performance or an equivalent professional certificate.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Under exceptional circumstances, candidates may be accepted on the basis of audition alone, or by examination and/or proof of professional study in a recognized program. Students requiring background in certain areas essential to their proposed program of study may be asked to take qualifying courses. An audition should consist of a representative program of minimum 20 minutes duration. Non-resident candidates should prepare an unedited videotape, but may be asked to audition on arrival.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Music Courses page for course descriptions.

Advanced Music Performance Studies Graduate Diploma (30 credits)

12 credits of Recital Performances
- AMPS 520 Recital I (6.00)
- AMPS 530 Recital II (6.00)

The recital programs will be chosen in consultation with the candidate's program advisor and approved by the Graduate Studies committee. The program advisor will supervise the preparation of the recitals. Final evaluations will be made by a jury chosen by the Graduate Studies committee.

6 credits of private instrumental or vocal instruction, with a minimum average grade of B:
- AMPS 521 521 Private Instrumental or Vocal Instruction I (3.00)
- AMPS 531 Private Instrumental or Vocal Instruction II (3.00)

3 credits of Seminar/Workshop courses chosen from:
- AMPS 501 Seminar - Workshop in Performance Skills (3.00)
- AMPS 503 String Seminar (3.00)
- AMPS 505 Piano Seminar (3.00)
- AMPS 507 Voice Seminar (3.00)
- AMPS 509 Organ and Harpsichord Seminar (3.00)

In addition, the candidate is expected to participate in orchestral or ensemble performance. Exceptions may be granted by the Graduate Program Director.

Each candidate's program of study will be chosen in consultation with the Graduate Program Director.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.

2. **Residence.** A candidate enrolled on a full-time basis will normally complete the program in two years. Exceptions may be granted by the Graduate Program Director.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** To graduate, students must have completed all course requirements with a cumulative grade point average of at least 2.70.

Film and Moving Image Studies PhD

Admission Requirements

- MA in Film Studies (or cognate field) with a minimum *B+* average or GPA of 3.30
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants will also be assessed by the School of Cinema's doctoral program sub-committee on the basis of a writing sample, letters of recommendation, research ability, and a letter of intent outlining research interests, to be submitted with their application. Prior to final acceptance, the student should have identified and contacted a potential supervisor. Final decision regarding supervision will be made by mutual agreement between the student, the doctoral program sub-committee, and the potential supervisor. Feasibility of proposed research and availability of a faculty member to supervise will also be considered. In certain instances students may be asked to complete qualifying graduate coursework. A detailed description of the program may be obtained from the PhD Program Director, Mel Hoppenheim School of Cinema.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Mel Hoppenheim School of Cinema Courses page for course descriptions.

Film and Moving Image Studies PhD (90 credits)

6	credits of Core Courses: • FMST 806 Proseminar I (3.00) • FMST 807 Proseminar II (3.00)
3	credits chosen from four clusters (two offered per year) • FMST 801 Seminar in Film and Moving Image History (3.00) • FMST 802 Seminar in Film and Moving Image Aesthetics (3.00) • FMST 803 Seminar in Film and Moving Image Theory (3.00) • FMST 804 Seminar in Film, Moving Image and Cultural Theory (3.00)
6	credits of Elective Courses • FMST 805 Topics in English Canadian Cinema (3.00) • FMST 810 Topics in Cinema Québécois (3.00) • FMST 815 Topics in European Cinema (3.00) • FMST 820 Topics in Non-European Cinema (3.00) • FMST 825 Topics in Film History (3.00) • FMST 830 Topics in Film Theory (3.00) • FMST 835 Topics in Aesthetics and Cultural Theory (3.00) • FMST 840 Gender Issues in Film (3.00) • FMST 845 Topics in Film Genres (3.00) • FMST 850 Topics in Experimental Film and Video (3.00) • FMST 855 Topics in Documentary (3.00) • FMST 860 Topics in Film Directors (3.00) • FMST 865 Topics in Film and Moving Image Studies (3.00) • FMST 870 Independent Study (3.00) • FMST 880 Research Seminar (3.00)

75 credits:

- FMST 887 Comprehensive Exam (3.00)
- FMST 885 Thesis Proposal (6.00)
- FMST 888 Specialization Examination Essay (3.00)
- FMST 890 Research and Thesis (63.00)

Additional Degree Requirements

Language. While English is the dominant language for activities in the School of Cinema, applicants must demonstrate a level of competence that would allow them to read technical material in French (or another pertinent language with regards to their research). Students may write reports, examinations, and theses in English or French, as they choose.

Coursework. It is expected that students, on average, complete 12 credits of coursework during the first year and complete the remaining three course credits before being admitted to candidacy**.** On a yearly basis, a minimum of 12 credits of core graduate coursework is offered for doctoral students only by the Mel Hoppenheim School of Cinema. This includes Proseminar I and Proseminar II, which are taken consecutively in the student's first year.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residency.** The minimum required residence requirement is six consecutive terms of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Cinematic Arts MFA

Admission Requirements

- BFA or BA in a concentration in film production, video, photography, animation, media arts, or equivalent from a recognized institution and with a minimum B average in the major area.
- Applicants with undergraduate degrees in other programs may also be considered.
- Undergraduate experience and proficiency relevant to the area of cinematic arts.
- **Proficiency in English**. Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

- Qualified applicants lacking prerequisite courses may be required to take up to 12 undergraduate credits in addition to the regular graduate program.
- In admitting students to the program, the MFA Graduate Program Director ensures that a potential supervisor exists within the faculty for the student's research area. The onus is on the student, however, to secure a member of the faculty to supervise the thesis.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Mel Hoppenheim School of Cinema Courses page for course descriptions.

Cinematic Arts MFA (45 credits)

12	credits of Core Courses: • FMPR 620 Film Production I (3.00) • FMPR 621 Film Production II (3.00) • FMPR 622 Film Production III (3.00) • FMPR 623 Film Production IV (3.00)
3	credits: • FMPR 625 Graduate Symposium (3.00)
6	credits of Elective Courses, with 3 credits chosen from the Cinematic Arts MFA Elective Courses and 3 credits from outside the program approved by the Graduate Program Director and with permission of the other area offering the course. Note: Students may count a maximum of 3 credits of supervised internship credits toward the degree requirements for the program.
24	credits: • FMPR 691 Research-Creation Thesis (24.00)

Cinematic Arts MFA Studio Courses

- FMPR 620 Film Production I (3.00)
- FMPR 621 Film Production II (3.00)
- FMPR 622 Film Production III (3.00)
- FMPR 623 Film Production IV (3.00)
- FMPR 625 Graduate Symposium (3.00)

Cinematic Arts MFA Studio Courses

- FMPR 630 Special Topics in Creative Nonfiction (3.00)
- FMPR 640 Special Topics in Fiction Practices (3.00)

MFA Cinematic Arts Internship and Independent Study Courses

- FMPR 661 Professional Internship (3.00)
- FMPR 671 Independent Study (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is three terms of full-time study.
3. **Time Limit.** Please refer to the Academic regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Film and Moving Image Studies MA

Admission Requirements

- Undergraduate degree in Film Studies (or related field) with a minimum *B* average (GPA 3.00)
- Applicants may be requested to attend an interview with the graduate committee.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

All applicants will be required to submit an example of their writing on cinema, and a letter of intent.

Some applicants who have undergraduate degrees in other programs will also be considered. These students must have a strong interest in cinema from the perspective of other disciplines such as art history, film production, communications, English, French, sociology, philosophy, history or political science. Students applying from non-film studies programs must demonstrate to the committee that they have a basic knowledge of core film studies materials.

Qualified applicants lacking prerequisite courses may be required to take up to 12 undergraduate credits (or the equivalent, to be approved by the Department's Graduate Studies Committee) in addition to the regular graduate program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Mel Hoppenheim School of Cinema Courses page for course descriptions.

Film and Moving Image Studies MA (45 credits)

9	credits of Film and Moving Image Studies MA Required Courses
36	credits chosen from one of the following options: Film and Moving Image Studies MA Option A - Thesis Film and Moving Image Studies MA Option B - Course-based

Film and Moving Image Studies MA Option A - Thesis (36 credits)

9	credits of Elective Courses chosen from the Film and Moving Image Studies MA Courses Note: The maximum value of practicum (internship) credits allowable in this option is 6.
27	credits: • FMST 690 MA Research and Thesis (27.00)

Film and Moving Image Studies MA Option B - Course-based (36 credits)

36	credits of courses chosen from the Film and Moving Image Studies MA Courses list. Note: The maximum number of practicum (internship) credits allowable in this option is 12.

Film and Moving Image Studies MA Required Courses (9 credits)

6	credits: • FMST 601 Methods in Film and Moving Image Studies I (3.00)

	• FMST 602 Methods in Film and Moving Image Studies II (3.00)
3	credits chosen from: • FMST 610 Topics in Cinema Québécois (3.00) • FMST 605 Topics in English Canadian Cinema (3.00)

Film and Moving Image Studies MA Courses

- FMST 615 Topics in European Cinema (3.00)
- FMST 620 Topics in Non-European Cinema (3.00)
- FMST 625 Topics in Film History (3.00)
- FMST 630 Topics in Film Theory (3.00)
- FMST 635 Topics in Aesthetics and Cultural Theory (3.00)
- FMST 640 Gender Issues in Film (3.00)
- FMST 645 Topics in Film Genres (3.00)
- FMST 650 Topics in Experimental Film and Video (3.00)
- FMST 655 Topics in Documentary (MA) (3.00)
- FMST 660 Topics in Film Directors (3.00)
- FMST 665 Topics in Film and Moving Image Studies (3.00)
- FMST 670 Independent Study (3.00)
- FMST 675 Practicum (3.00)
- FMST 680 Practicum (3.00)
- FMST 685 Practicum (6.00)

Additional Degree Requirements

Options. The program offers two different options to fulfill degree requirements. Both program options require original research.

Courses. All students may take 9 of their required additional course credits in graduate courses offered by other departments in the university. Such courses must be approved by the Department's Graduate Studies Committee, with permission of the other department concerned.

In admitting students to Film and Moving Image Studies MA Option A - Thesis , the GPD will ensure that a potential supervisor exists within the faculty for the student's research area. The onus is on the student, however, to secure a member of the faculty to supervise the thesis. See the course description for FMST 690 for further detail.

In each course, students pursuing Film and Moving Image Studies MA Option B - Course-based are required to submit a research paper and make an oral presentation. Students will become familiar with a broad range of methodologies and film practices. Within this framework, they may also be able to pursue specific areas of interest by enroling in independent studies, internships or taking courses in other departments in the university.

Practicum Credits. See the course descriptions for FMST 675, FMST 680 and FMST 685 for detail.

Language. All students are expected to have a reading knowledge of English and French at the time they begin classes. Courses will be conducted in English, although French texts may be assigned on occasion. Written and oral assignments may be submitted in either English or French. Students who cannot read both French and English texts comfortably should begin their remedial language work before starting classes. A test will be administered by the department to ensure a functioning competency in French for those students whose first language is English or another language. All students must pass this test before receiving their degree, except those who demonstrate to the Graduate Program Director that they are fluently bilingual. A student may also apply to be exempted from the French language test should competency in a language other than English or French be pertinent to the student's research. This competency must be verified by the GPD.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic

Regulations.

2. **Residence.** All options have a minimum residence requirement of three terms of full-time study or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Studio Arts MFA

Admission Requirements

- BFA or BA with a Fine Arts or Fine Arts and Art History major, or an approved equivalent, from a recognized institution and with a minimum B average in the major area.
- Undergraduate experience and proficiency relevant to the area of specialization.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Students with a BFA from Concordia University must wait two years before being considered for admission into the MFA program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 60 credits.

Please see the Studio Arts Courses page for course descriptions.

Studio Arts MFA (60 credits)

24	credits chosen from the Studio Concentration
3	credits: • DISP 615 Directed Studio Practice (3.00)
21	credits chosen from the following courses: • ASEM 620 Art: Ideas and Practices (3.00) • ASEM 641 Seminar in Contemporary Art (6.00) • ASEM 642 Seminar in Contemporary Art (3.00) • ASEM 643 Special Topics in Art and Ideology (6.00) • ASEM 644 Special Topics In Art and Ideology (3.00) • ASEM 645 Special Topics in Art and Culture (6.00) • ASEM 646 Special Topics in Art and Culture (3.00) • ASEM 651 Special Topics in Media Arts (6.00) • ASEM 652 Special Topics in Media Arts (3.00) • ASEM 653 Aspects of Contemporary Cinema (6.00) • ASEM 654 Aspects of Contemporary Cinema (3.00) • INTP 660 Professional Internship (6.00) • INTP 661 Professional Internship I (3.00) • INTP 662 Professional Internship II (3.00) • INDS 670 Independent Study (6.00) • INDS 671 Independent Study I (3.00) • INDS 672 Independent Study II (3.00)
12	credits • PROJ 691 Studio Project (9.00) • PROJ 692 Exhibition (3.00)

Additional Degree Requirements

Studio Project and Exhibition. In the third or fourth year and no less than six months following the successful completion of the second year of course work, students may present their studio project and complete the exhibition. Approval by both the student's advisor and the graduate program director is required prior to the examination. Students are also required to submit documentation of their exhibition to be kept on file in the office of the Graduate Program Director.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is 5 terms of full-time study. It should be noted that one of these terms is a summer session. Following the residency, candidates will prepare for their Studio Project and Exhibition.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Gina Cody School of Engineering and Computer Science Programs

General Requirements for all Engineering and Computer Science Programs

- Degrees
- Academic Regulations
- Doctor of/Doctorate in Philosophy (PhD)
- Master of/Magisteriate in Applied Science (MASc)
- Master of/Magisteriate in Engineering (MEng)

Building, Civil and Environmental Engineering Programs

- **Doctor/Doctorate**
 - Building Engineering PhD
 - Civil Engineering PhD
- **Master/Magisteriate**
 - Building Engineering MASc
 - Building Engineering MEng
 - Civil Engineering MASc
 - Civil Engineering MEng
 - Construction Engineering and Management MEng
 - Environmental Engineering MEng
- **Graduate Certificate**
 - Building Engineering Graduate Certificate
 - Environmental Engineering Graduate Certificate

Centre for Engineering in Society Programs

- **Graduate Certificate**
 - Innovation, Technology and Society Graduate Certificate

Chemical and Materials Engineering Programs

- **Doctor/Doctorate**
 - Chemical Engineering PhD
- **Master/Magisteriate**
 - Chemical Engineering MASc
- **Graduate Diploma**
 - Chemical Engineering Graduate Diploma
- **Graduate Certificate**
 - Chemical Engineering Graduate Certificate

Concordia Institute for Information Systems Engineering Programs

- **Doctor/Doctorate**
 - Information and Systems Engineering PhD
- **Master/Magisteriate**
 - Information Systems Security MASc
 - Information Systems Security MEng
 - Quality Systems Engineering MASc
 - Quality Systems Engineering MEng
- **Graduate Certificate**
 - 3D Graphics and Game Development Graduate Certificate
 - Service Engineering and Network Management Graduate Certificate

Electrical and Computer Engineering Programs

- **Doctor/Doctorate**
 - Electrical and Computer Engineering PhD
- **Master/Magisteriate**
 - Electrical and Computer Engineering MASc
 - Electrical and Computer Engineering MEng

Mechanical, Industrial and Aerospace Engineering Programs

- **Doctor/Doctorate**
 - Industrial Engineering PhD
 - Mechanical Engineering PhD
- **Master/Magisteriate**
 - Aerospace MEng
 - Industrial Engineering MASc
 - Industrial Engineering MEng
 - Mechanical Engineering MASc
 - Mechanical Engineering MEng
- **Graduate Certificate**
 - Mechanical Engineering Graduate Certificate

Computer Science and Software Engineering Programs

- **Doctor/Doctorate**
 - Computer Science PhD
 - Software Engineering PhD
- **Master/Magisteriate**

- Applied Computer Science MApCompSc
- Computer Science MCompSc
- Software Engineering MASc
- Software Engineering MEng

- **Graduate Diploma**
 - Computer Science Graduate Diploma

Degrees

- Doctor of/Doctorate in Philosophy (PhD)
- Master of/Magistrate in Applied Science (MASc)
- Master of/Magistrate in Engineering (MEng)

Proficiency in English

Proficiency in English. Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Engineering Writing Test (EWT)

In addition to the general admission requirements, the Gina Cody School (GCS) may require applicants to write the Engineering Writing Test (EWT) as a condition of admission to all graduate programs in Engineering and Computer Science. Depending on the result, students may be required to complete remedial English language courses in addition to their program requirements.

Engineering Writing Test (EWT). The Engineering Writing Test examines students' ability to provide reasoned assessment of a short technical composition in English or French, and their ability to provide a qualitative account of quantitative or graphically presented data. The test is offered a number of times throughout the year. Based on their performance in the test, students may be asked to take remedial courses.

Academic Regulations

All students registered in a Gina Cody School graduate degree program are assessed at the end of each academic term. This assessment is based on:

1. courses for which a grade point value has been assigned subsequent to their admission to their program, or in the case of reinstated students, subsequent to their reinstatement, and
2. other degree requirements, for which no grade point value is assigned, such as doctoral seminars, comprehensive examinations, doctoral research proposals and theses which are graded on a pass/fail or equivalent basis.

Standings of students are determined as follows:

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
 Degree Specific Requirements. PhD program: Students must obtain an assessment grade point average (AGPA) of 3.00 based on a minimum of 8 credits. A maximum of one grade below *B* is permitted.
2. **Graduation Requirements.** To be considered for the award of a graduate degree, students in Certificate, Diploma, and Master programs must have a minimum cumulative GPA of 2.70, and students in the PhD programs must have a minimum cumulative GPA of 3.00.

Students must have satisfied all degree requirements of their program of study and obtained the required minimum cumulative grade point average based on all courses credited towards the degree. These courses must be taken at Concordia subsequent to first registration in the program, or credited to Concordia from other universities in accordance with credit transfer regulations in the graduate calendar.
In the case of PhD students, a maximum of one grade below B is permitted.

Doctor of/Doctorate in Philosophy (PhD)

The PhD Program

The PhDprogram leads to the highest degree offered by the Gina Cody School and is designed to provide students an opportunity to obtain the greatest possible expertise in their chosen field through intensive research. Advancement of analytical and/or experimental knowledge through a combination of specialized courses and a research thesis under the supervision of an experienced researcher forms the main component of the doctoral program. Where possible, research of interest to industry is encouraged. The objective of the PhD program is to educate highly qualified researchers required for the expansion of fundamental knowledge and technological innovation through research and development, as well as the needs of institutions of higher learning.

Admission Requirements

Admission on a full-time basis

- Master’s degree or equivalent with high standing in engineering or computer science, or in a cognate discipline.
- Holders of a bachelor’s degree will, in general, be considered for admission to a master’s program only. After completion of a minimum of one term of full-time study in the Master's degree, they may, upon application, be recommended by the Department and approved by the GCS Associate Dean of Research and Graduate Studies for admission to a PhD program.

Admission on a part-time basis

- Master’s degree with high standing in engineering, computer science or a cognate discipline.

Additional Admission Requirements

Direct Entry: In some cases students with high academic performance evidenced by an outstanding GPA, appropriate research publicationsin the field of study, and recipients of external scholarships and awards (NSERC, CIHR, FRQNT) may apply to the PhD program directly (direct entry) from their bachelor's degree in the same discipline.

Applicants should understand that admission is contingent not only upon a superior academic record, but also on the availability of a research supervisor, relevant programs of study and research, as well as adequate laboratory and library facilities. Where applicable, an ability to write programs in a standard computer language will be assumed. Students lacking this skill will be required to register for appropriate courses.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

The requirements listed here apply to students enrolled in the following programs:

Building Engineering PhD

Civil Engineering PhD

Chemical Engineering PhD

Mechanical Engineering PhD

Industrial Engineering PhD

Information and Systems Engineering PhD

Electrical and Computer Engineering PhD

Computer Science PhD

Software Engineering PhD

Please see the Engineering Courses and Computer Science and Software Engineering Courses pages for course descriptions.

Doctor of/Doctorate in Philosophy (PhD) (90 credits)

12	credits of coursework chosen from the list of Engineering Courses and Computer Science and Software Engineering Courses.
8	credits: • ENCS 8501 Comprehensive Examination (0.00) • ENCS 8511 Doctoral Research Proposal (6.00) • ENCS 8011 PhD Seminar (2.00)
70	credits chosen from one of the following Research and Thesis courses: • ENGR 8911 Doctoral Research and Thesis (70.00) • COMP 8901 Doctoral Research and Thesis (70.00) • SOEN 8901 Doctoral Research and Thesis (70.00)

Additional Degree Requirements

Credits. A fully-qualified candidate entering the doctoral program with a master's degree is required to complete a minimum of 90 credits. A candidate admitted directly from the bachelor's level or from an incomplete master's is required to complete a minimum of 90 credits after admission to the PhD program. Transfer credits from an incomplete master's program to the PhD program requires departmental approval at the time of admission. Candidates admitted with a master's degree in a cognate discipline, or if they need additional knowledge in an area pertinent to their research, will, in general, be required to complete more than the minimum number of credits. Students may not credit any undergraduate equivalent course towards the requirements of the PhD program without the permission of their supervisor and of the Graduate Program Director.

Residence. For candidates admitted with a master's degree, the minimum period of residence is two years of full-time study or the equivalent in part-time study. Part-time students may be required by the GCS Graduate Studies Committee, upon the recommendation of the supervisory committee, to carry out a portion of their research on a full-time basis. Where a candidate has been admitted with a bachelor's degree, the minimum period of residence is 36 months of full-time study after completion of the bachelor's degree.

Transfer Credits. Students may be granted transfer credit for courses taken in approved graduate studies prior to their entry into their program. A course submitted for transfer credit must be appropriate to the student's program of study at Concordia University. An application for such credit will be considered only at the time of admission.

Courses. Students admitted on the basis of a master's degree will normally be required to complete a minimum of 12 credits in course work. A student admitted on the basis of a bachelor's degree will be required to complete a minimum of 12 credits in course work at the discretion of the supervisor and Departmental policy. Each student's program must be approved by a supervisory committee consisting of three members of faculty, including the student's research supervisor.

Cross-Registration. A student in the program wishing to take courses under the cross-registration scheme must first obtain approval of the GCS Graduate Studies Committee. (See Inter-University Agreement in Graduate Registration section).

Time Limit. Please refer to the Academic Regulation page for further details regarding the Time Limits.

Master of/Magisteriate in Applied Science (MASc)

The MASc Program

This program is designed to provide students with an opportunity to strengthen, in some specific area or areas, the knowledge gained at the undergraduate level, and to provide a significant introduction to research. It will appeal primarily to the student interested in full-time study.

Admission Requirements

- Bachelor's degree in engineering or equivalent with high standing.

Additional Admission Requirements

Consideration will also be given to candidates with a degree in a cognate area with high standing; such students may be required to enrol in an extended program. In particular, applicants with a bachelor's degree in architecture will be considered for the MASc in Building Engineering.

The GCS Graduate Studies Committee will determine the acceptability of an applicant for admission to the program and may require an applicant to take specified undergraduate courses in order to qualify for acceptance. Qualified applicants requiring prerequisite courses may be required to take such courses in addition to their regular graduate program.

Applicants with deficiencies in their undergraduate preparation may be required to take a qualifying program. An ability to write simple programs in a standard computer language will be assumed. Students lacking this skill will be required to register for a course prescribed by the Graduate Program Director. This course will be taken in addition to regular degree requirements.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Credits. For specific program requirements, refer to the relevant departmental entry. Each individual program of study must be approved by the student's department and the GCS Graduate Studies Committee.

Transfer Credits. Students may be granted transfer academic credits for, in general, not more than eight credits taken in approved graduate studies prior to their entry into this program. A course submitted for transfer credits must be appropriate to the student's program of study at Concordia University. An application for such credit will be considered only at the time of admission.

Option Changes. Transfers between all Master's programs at the Gina Cody School are considered option changes. All courses attempted in the original program are included in the new option and calculated in the CGPA.

Cross-Registration. A student in the program wishing to take courses under the cross-registration scheme must first obtain approval of the GCS Graduate Studies Committee. (See Inter-University Agreement section.)

Time Limit. Please refer to the Academic Regulation page for further details regarding the Time Limits.

Master of/Magisteriate in Engineering (MEng)

The MEng Program

This program is designed to provide practicing engineers with an opportunity to strengthen and extend the knowledge they have obtained at the undergraduate level, to develop their design skills, and to enhance their ability to present technical material in written form.

Admission Requirements

- Bachelor's degree in engineering or equivalent with high standing.

Additional Admission Requirements

Applicants with a bachelor's degree in architecture with high engineering content may also be considered for the MEng program. Such students will be required to enrol in an extended program.

The GCS Graduate Studies Committee will determine the acceptability of an applicant for admission to the program and may require an applicant to take specified undergraduate courses in order to qualify for acceptance. Qualified applicants requiring prerequisite courses may be required to take such courses in addition to their regular graduate program. Applicants with deficiencies in their undergraduate preparation may be required to take a qualifying program. An ability to write simple programs in a standard computer language will be assumed. Students lacking this skill will be required to register for the appropriate course. This course will be taken in addition to regular degree requirements.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Credits. For specific program requirements, refer to the relevant departmental entry in the following pages. Each individual program of study must be approved by the student's department.

Transfer Credits. Student may be granted transfer academic credits for, in general, not more than 12 credits taken in approved graduate studies prior to their entry into this program. A course submitted for transfer credits must be appropriate to the student's program of study at Concordia University. An application for such credit will be considered only at the time of admission.

Option Changes. Transfers between all Master's programs at the Gina Cody School are considered option changes. All courses attempted in the original program are included in the new option and calculated in the CGPA.

Other Courses. A limited number of credits are recognized toward the MEng degree for courses taken under the heading Impact of Engineering on Society and for cognate courses taken from the MBA program. For details refer to the relevant departmental entry in the following pages.

Cross-Registration. A student in the program wishing to take courses under the cross-registration scheme must first obtain approval of the GCS Graduate Studies Committee.

Time Limit. Please refer to the Academic Regulation page for further details regarding the Time Limits.

Project. Depending on individual department requirements, students may choose to do one or more projects as part of their program. They do so by registering for one or more of the sequence ENGR 6971, ENGR 6981, ENGR 6991. Where students choose to carry out a multi-course project, the project will be graded by at least two professors.

With the permission of their Department, students in the MEng Program may register for these project courses if they wish to carry out a more extended project, or if they wish to complete further projects. Each project course requires prior approval by the faculty member who has accepted to supervise the work. Students working on a multi-course project must register for the corresponding project courses in successive terms. For ENGR 6991 and multi-course projects, the report is due on the last day of classes of the last term in which they are registered. In the case of ENGR 6991 and multi-course project, three copies of the report must be submitted to the advisor on or before this deadline, and students are also required to make an oral presentation to the evaluators, and other members of the community. The report will be evaluated by the advisor and at least one other Engineering and Computer Science member of the Gina Cody School.

Graduate Co-op Option in the Master of Engineering

The Graduate Co-op Option is a structured Internship program offered through the Institute for Co-operative Education. Students registered

in the Master of Engineering (MEng) program with the Gina Cody School (GCS) are eligible to apply to the Co-op Option. For the general guidelines, please refer to the Institute of Co-operative Education.

Admission Criteria

In addition to the general requirements for entrance into the Institute for Co-operative Education, the GCS has these additional requirements:

- Students apply to the Graduate Co-op Option in the first year of their academic program.
- Students must maintain a cumulative GPA of 3.00 or better throughout their studies.
- Some academic programs may have a higher GPA requirement and/or additional admission requirements.
- Registration for ENCS 6921 must be approved by the Department Co-op Program Academic Director or Graduate Program Director.

Building Engineering PhD

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Engineering Courses page for course descriptions.

Building Engineering PhD (90 credits)

See the description of the requirements for the Doctor of/Doctorate in Philosophy (PhD) in the General Requirements for all Engineering and Computer Science Programs section.

Civil Engineering PhD

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Engineering Courses page for course descriptions.

Civil Engineering PhD (90 credits)

See the description of the requirements for the Doctor of/Doctorate in Philosophy (PhD) in the General Requirements for all Engineering and Computer Science Programs section.

Building Engineering MASc

Specialized Branches

The Department offers a research-based degree (MASc) with specialization in one of the following four branches:

1. **Building Science**
2. **Building Environment**
3. **Building Construction and Facility Management**
4. **Building Structures**

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master's programs in the Master/Magisteriate in Applied Science (MASc) section under General Requirements for all Programs

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Building Engineering MASc (45 credits)

16 credits of Coursework with four courses chosen from the Engineering Courses section, approved by the student's supervisor and either the Graduate Program Director or the Chair of the Department.

29 credits:
• ENGR 8901 Master of Applied Science Research and Thesis (29.00)

Building Engineering MEng

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Engineering (MEng) in the General Requirements for all Engineering and Computer Science Programs.

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Building Engineering MEng (45 credits)

5 credits of Core Courses:

- BCEE 6001 Graduate Seminar in Building and Civil Engineering (1.00)
- BLDG 6611 Building Science (4.00)

28 credits minimum chosen from the groups listed below to facilitate the selection of courses in a particular area of interest:
Building Science (Building Engineering MEng)
Building Environment (Building Engineering MEng)
Energy Conversion (Building Engineering MEng)
Integrative Studies for Building Engineering (Building Engineering MEng) Note: A maximum of 2 courses (8 credits) can be taken from the Integrative Studies for Building Engineering (Building Engineering MEng) list to be counted towards the 28 credits. Additional courses from this list would count towards the 12-credit group below.

12 credits maximum chosen from the Engineering Courses section. Four credits maximum (i.e.: one 4-credit course or four 1-credit courses) can be selected from Topic Area E09 - Professional Leadership Skills

The 28 credits minimum are to be selected from the following courses.

Building Science (Building Engineering MEng)

- BLDG 6541 Thermal Analysis in Buildings (4.00)
- BLDG 6601 Building Enclosure (4.00)
- BLDG 6621 Non-structural Building Materials (4.00)
- BLDG 6622 Durability of Building Materials and Components (4.00)
- BLDG 6651 Fire and Smoke Control in Buildings (4.00)
- BLDG 6661 Hygrothermal Performance of the Building Envelope (4.00)
- BLDG 6671 Diagnostics and Rehabilitation of Building Envelope (4.00)

Building Environment (Building Engineering MEng)

- BLDG 6701 Building Environment (4.00)
- BLDG 6711 Mechanical Systems in Building (4.00)
- BLDG 6721 Building Acoustics (4.00)
- BLDG 6731 Building Illumination and Daylighting (4.00)
- BLDG 6741 HVAC Control Systems (4.00)
- BLDG 6751 Indoor Air Quality and Ventilation (4.00)
- BLDG 6761 Intelligent Buildings (4.00)
- BLDG 6781 Energy Management in Buildings (4.00)
- BLDG 6791 Thermal Building Simulation (4.00)

- BLDG 7401 Dispersion of Building Exhaust (4.00)

Energy Conversion (Building Engineering MEng)

- BLDG 6951 Solar Building Modelling and Design (4.00)
- BLDG 6601 Building Enclosure (4.00)
- ENGR 6611 Equipment Design for Solar Energy Conversion (4.00)
- ENGR 6661 Solar Energy Materials Science (4.00)
- ENGR 6811 Energy Resources: Conventional and Renewable (4.00)

Integrative Studies for Building Engineering (Building Engineering MEng)

- BLDG 6061 Structural Systems for Buildings (4.00)
- BLDG 6071 Wind Engineering and Building Aerodynamics (4.00)
- BLDG 6111 Fundamentals of Smart Buildings Operation (4.00)
- BLDG 6231 Applications of Artificial Intelligence in Building and Civil Engineering (4.00)
- BLDG 6241 Building Information Modelling in Construction (4.00)
- BLDG 6561 Building Economics I (4.00)
- BLDG 6571 Project Management (4.00)
- BLDG 6581 Decision Analysis (4.00)
- BLDG 6631 Fundamentals of Facility Management (4.00)
- BLDG 6641 Modular and Off-site Construction (4.00)
- BLDG 6861 Simulations and Design of Construction Operations (4.00)
- BLDG 7511 Integrated Building Design (4.00)

Civil Engineering MASc

Specialized Branches

The Department offers a research-based degree (MASc) with specialization in one of the following six branches:

1. Structural and Infrastructure Engineering
2. Water Resources Engineering
3. Geotechnical Engineering
4. Transportation Engineering
5. Environmental Engineering
6. Construction Engineering and Management

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Applied Science (MASc) in the Gina Cody School of Engineering and Computer Science.

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Civil Engineering MASc (45 credits)

16	credits of Coursework, with four courses chosen from the Engineering Courses section, approved by the student's supervisor and either the Graduate Program Director or the Chair of the Department.
29	credits: • ENGR 8901 Master of Applied Science Research and Thesis (29.00)

Civil Engineering MEng

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Engineering (MEng) in the General Requirements for all Engineering and Computer Science Programs.

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Civil Engineering MEng (45 credits)

5 credits of Core Courses:

- BCEE 6001 Graduate Seminar in Building and Civil Engineering (1.00)
- CIVI 6501 Foundation Engineering (4.00)

28 credits minimum chosen from the groups listed below, to facilitate the selection of courses in a particular area of interest.
Structural Engineering (Civil Engineering MEng)
Bridge Engineering (Civil Engineering MEng) Transportation Engineering (Civil Engineering MEng)
Geotechnical Engineering (Civil Engineering MEng)
Structural Mechanics (Civil Engineering MEng)

12 credits maximum chosen from the Engineering Courses section. Four credits maximum (i.e.: one 4-credit course or four 1-credit courses) can be selected from Topic Area E09 - Professional Leadership Skills

The 28 credits minimum are to be selected from the following courses.

Structural Engineering (Civil Engineering MEng)

- BLDG 6061 Structural Systems for Buildings (4.00)
- BLDG 6071 Wind Engineering and Building Aerodynamics (4.00)
- CIVI 6001 Advanced Reinforced Concrete (4.00)
- CIVI 6011 Pre-cast and Pre-stressed Concrete Structures (4.00)
- CIVI 6021 Durability of Concrete Materials (4.00)
- CIVI 6031 Seismic Assessment and Retrofit of Structures (4.00)
- CIVI 6051 Design of Industrial Structures (4.00)
- CIVI 6061 Structural Health Monitoring (4.00)
- CIVI 6071 Advanced Steel Structures Design (4.00)
- CIVI 6931 Civil Infrastructure Rehabilitation (4.00)

Bridge Engineering (Civil Engineering MEng)

- CIVI 6101 Planning and Design of Bridges (4.00)
- CIVI 7111 Theory and Design of Modern Bridge Systems (4.00)

Transportation Engineering (Civil Engineering MEng)

- CIVI 6401 Transportation Systems Analysis (4.00)
- CIVI 6411 Urban Transportation Planning (4.00)

- CIVI 6441 Traffic Engineering (4.00)
- CIVI 6451 Pavement Design (4.00)
- CIVI 6461 Pavement Management Systems (4.00)

Geotechnical Engineering (Civil Engineering MEng)

- CIVI 6511 Earth Structures and Slope Stability (4.00)
- CIVI 6521 Soil Behaviour (4.00)
- CIVI 6531 Soil Testing and Properties (4.00)

Structural Mechanics (Civil Engineering MEng)

- ENGR 6151 Continuum Mechanics (4.00)
- ENGR 6511 Fundamentals of Finite Element Analysis of Structures (4.00)
- ENGR 6541 Structural Dynamics (4.00)
- ENGR 6551 Theory of Elastic and Inelastic Stability (4.00)
- ENGR 6581 Introduction to Structural Dynamics (4.00)
- ENGR 7501 Advanced Finite Element Method in Structural Mechanics (4.00)

Construction Engineering and Management MEng

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Engineering (MEng) in the Gina Cody School of Engineering and Computer Science.

Fully- qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Construction Engineering and Management MEng (45 credits)

5 credits of Core Courses:

- BCEE 6001 Graduate Seminar in Building and Civil Engineering (1.00)
- BLDG 6571 Project Management (4.00)

28 credits minimum chosen from:

- BLDG 6241 Building Information Modelling in Construction (4.00)
- BLDG 6561 Building Economics I (4.00)
- BLDG 6631 Fundamentals of Facility Management (4.00)
- BLDG 6641 Modular and Off-site Construction (4.00)
- BLDG 6801 Construction Planning and Control (4.00)
- BLDG 6811 Labour and Industrial Relations in Construction (4.00)
- BLDG 6821 Legal Issues in Construction (4.00)
- BLDG 6831 Construction Processes (4.00)
- BLDG 6851 Project Cost Estimating (4.00)
- BLDG 6861 Simulations and Design of Construction Operations (4.00)
- BLDG 6921 Trenchless Technology for Rehabilitation Works (4.00)
- BLDG 7811 Project Acquisition and Control (4.00)
- BLDG 7831 Building Economics II (4.00)
- BLDG 7841 Information Technology Applications in Construction (4.00)
- BLDG 7861 Business Practices in Construction (4.00)
- BLDG 7871 Construction Equipment Management (4.00)
- CIVI 6711 Asset Management for Sustainable Civil Infrastructure (4.00)
- CIVI 6731 Big Data Analytics for Smart Cities (4.00)
- CIVI 6721 Infrastructure Systems Modeling and Simulation (4.00)

12 credits maximum chosen from the Engineering Courses section. Four credits maximum (i.e.: one 4-credit course or four 1-credit courses) can be selected from Topic Area E09 - Professional Leadership Skills

Environmental Engineering MEng

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Engineering (MEng) Master's programs in the Gina Cody School of Engineering and Computer Science.

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Environmental Engineering MEng (45 credits)

5 credits of Core Courses:

- BCEE 6001 Graduate Seminar in Building and Civil Engineering (1.00)
- CIVI 6611 Environmental Engineering (4.00)

28 credits minimum chosen from the groups listed below, to facilitate the selection of courses in a particular area of interest:
Water Resources (Environmental Engineering MEng)
Industrial Waste Management (Environmental Engineering MEng)
Environmental Engineering (Environmental Engineering MEng)

12 credits maximum chosen from the Engineering Courses section. Four credits maximum (i.e.: one 4-credit course or four 1-credit courses) can be selected from Topic Area E09 - Professional Leadership Skills. Graduate courses outside engineering require GPD approval prior to registration.

The 28 credits minimum are to be selected from the following courses.

Water Resources

- CIVI 6301 Hydrology (4.00)
- CIVI 6331 Hydraulic Engineering (4.00)
- CIVI 6381 Hydraulic Structures (4.00)
- CIVI 7311 Advanced Analysis of Groundwater Flow and Contamination (4.00)

Industrial Waste Management (Environmental Engineering MEng)

- CIVI 6481 Sustainable Management of Industrial Waste (4.00)
- CIVI 6491 Engineering Aspects of Site Remediation (4.00)
- CIVI 6631 Hazardous Material Management and Transportation (4.00)
- CIVI 6671 Fate and Transport of Contaminants in the Environment (4.00)
- CIVI 6661 Environmental Impact Assessment (4.00)

Environmental Engineering (Environmental Engineering MEng)

- CIVI 6601 Modelling in Building and Environmental Engineering (4.00)
- CIVI 6621 Engineering Aspects of Biological Treatment of Water and Air (4.00)
- CIVI 6641 Unit Operations in Environmental Engineering (4.00)
- CIVI 6651 Water Pollution and Control (4.00)
- CIVI 6666 Climate Change in Engineering Practice (4.00)

- CIVI 6681 Environmental Nanotechnology (4.00)
- CIVI 6691 Greenhouse Gases and Control (4.00)

Building Engineering Graduate Certificate

Admission Requirements

- Bachelor's degree in engineering or architecture or equivalent with an above-average standing.

Additional Admission Requirements

The Department will recommend on the acceptability of an applicant for admission to the program and may require the applicant to do specific remedial course work to meet the program requirements.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 16 credits.

Please see the Engineering Courses page for course descriptions.

Building Engineering Graduate Certificate (16 credits)

12 credits of courses chosen from one of the following areas of concentration:
Building Science Core Courses (Building Engineering Graduate Certificate)
Construction Engineering and Management Core Courses (Building Engineering Graduate Certificate)
Energy Efficiency Core Courses (Building Engineering Graduate Certificate)
Indoor Environment Core Courses (Building Engineering Graduate Certificate)
Rehabilitation of Urban Infrastructure Core Courses (Building Engineering Graduate Certificate)
Facility Management Core Courses (Building Engineering Graduate Certificate)

4 credits chosen from the Building Engineering Graduate Certificate Electives list.

Notes:
-The program can be completed in one year. Students with high standing in their bachelor program and whose academic records satisfy the requirements for good standing in the Master's Program in Building Engineering may apply for transfer to the Master's program.
-Core courses for which credits have been credited to another certificate or program must be replaced by elective courses in the area of concentration or by other courses on special permission.

Building Science Core Courses (Building Engineering Graduate Certificate)

- BLDG 6611 Building Science (4.00)
- BLDG 6621 Non-structural Building Materials (4.00)
- BLDG 6751 Indoor Air Quality and Ventilation (4.00)

Building Envelope Core Courses (Building Engineering Graduate Certificate)

- BLDG 6601 Building Enclosure (4.00)
- BLDG 6611 Building Science (4.00)
- BLDG 6661 Hygrothermal Performance of the Building Envelope (4.00)

Construction Management Core Courses (Building Engineering Graduate Certificate)

- BLDG 6561 Building Economics I (4.00)
- BLDG 6571 Project Management (4.00)

- BLDG 6831 Construction Processes (4.00)

Energy Efficiency Core Courses (Building Engineering Graduate Certificate)

- BLDG 6601 Building Enclosure (4.00)
- BLDG 6611 Building Science (4.00)
- BLDG 6661 Hygrothermal Performance of the Building Envelope (4.00)

Indoor Environment Core Courses (Building Engineering Graduate Certificate)

- BLDG 6701 Building Environment (4.00)
- BLDG 6731 Building Illumination and Daylighting (4.00)
- BLDG 6751 Indoor Air Quality and Ventilation (4.00)

Rehabilitation of Urban Infrastructure Core Courses (Building Engineering Graduate Certificate)

- BLDG 6831 Construction Processes (4.00)
- BLDG 6921 Trenchless Technology for Rehabilitation Works (4.00)
- CIVI 6931 Civil Infrastructure Rehabilitation (4.00)

Facility Management Core Courses (Building Engineering Graduate Certificate)

- BLDG 6631 Fundamentals of Facility Management (4.00)
- BLDG 6561 Building Economics I (4.00)
- BLDG 6711 Mechanical Systems in Building (4.00)

Building Engineering Graduate Certificate Electives

Building Envelope Electives (Building Engineering Graduate Certificate)
Building Science Electives (Building Engineering Graduate Certificate)
Construction Management Electives (Building Engineering Graduate Certificate)
Energy Efficiency Electives (Building Engineering Graduate Certificate)
Indoor Environment Electives (Building Engineering Graduate Certificate)
Rehabilitation of Urban Infrastructure Electives (Building Engineering Graduate Certificate)
Facility Management Electives (Building Engineering Graduate Certificate)

Building Envelope Electives (Building Engineering Graduate Certificate)

- BLDG 6061 Structural Systems for Buildings (4.00)
- BLDG 6071 Wind Engineering and Building Aerodynamics (4.00)
- BLDG 6621 Non-structural Building Materials (4.00)
- BLDG 6731 Building Illumination and Daylighting (4.00)
- BLDG 6671 Diagnostics and Rehabilitation of Building Envelope (4.00)

Building Science Electives (Building Engineering Graduate Certificate)

- BLDG 6651 Fire and Smoke Control in Buildings (4.00)
- BLDG 6721 Building Acoustics (4.00)
- BLDG 6731 Building Illumination and Daylighting (4.00)

- BLDG 7401 Dispersion of Building Exhaust (4.00)
- ENGR 6601 Principles of Solar Engineering (4.00)
- ENGR 6661 Solar Energy Materials Science (4.00)

Construction Management Electives (Building Engineering Graduate Certificate)

- BLDG 6581 Decision Analysis (4.00)
- BLDG 6801 Construction Planning and Control (4.00)
- BLDG 6811 Labour and Industrial Relations in Construction (4.00)
- BLDG 6821 Legal Issues in Construction (4.00)
- BLDG 6851 Project Cost Estimating (4.00)
- BLDG 6861 Simulations and Design of Construction Operations (4.00)

Energy Efficiency Electives (Building Engineering Graduate Certificate)

- BLDG 6611 Building Science (4.00)
- BLDG 6741 HVAC Control Systems (4.00)
- BLDG 6761 Intelligent Buildings (4.00)
- BLDG 6781 Energy Management in Buildings (4.00)
- BLDG 6951 Solar Building Modelling and Design (4.00)
- ENGR 6601 Principles of Solar Engineering (4.00)
- ENGR 6811 Energy Resources: Conventional and Renewable (4.00)

Indoor Environment. Electives

- BLDG 6111 Fundamentals of Smart Buildings Operation (4.00)
- BLDG 6622 Durability of Building Materials and Components (4.00)
- BLDG 6661 Hygrothermal Performance of the Building Envelope (4.00)
- BLDG 6721 Building Acoustics (4.00)
- BLDG 6791 Thermal Building Simulation (4.00)
- ENGR 6601 Principles of Solar Engineering (4.00)
- CIVI 6601 Modelling in Building and Environmental Engineering (4.00)

Rehabilitation of Urban Infrastructure Electives (Building Engineering Graduate Certificate)

- BLDG 6801 Construction Planning and Control (4.00)
- BLDG 6581 Decision Analysis (4.00)
- CIVI 6101 Planning and Design of Bridges (4.00)
- MECH 6501 Advanced Materials (4.00)

Facility Management Electives (Building Engineering Graduate Certificate)

- BLDG 6581 Decision Analysis (4.00)
- BLDG 6701 Building Environment (4.00)
- BLDG 6741 HVAC Control Systems (4.00)
- BLDG 6751 Indoor Air Quality and Ventilation (4.00)
- BLDG 6761 Intelligent Buildings (4.00)
- BLDG 6111 Fundamentals of Smart Buildings Operation (4.00)
- BLDG 6781 Energy Management in Buildings (4.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
 Program Specific Requirements. An Assessment Grade Point Average (AGPA) of at least 2.70, based on a minimum of 8 credits is required.
2. **Time Limit.** Please refer to the Academic Regulation page for further details regarding the Time Limits.
3. **Graduation**. To be eligible to graduate, students must have obtained a CGPA of at least 2.70.

Environmental Engineering Graduate Certificate

Admission Requirements

- Bachelor's degree in engineering with an above-average standing.

Additional Admission Requirements

The Department will recommend on the acceptability of an applicant for admission to the program and may require the applicant to do specific remedial course work to meet the program requirements.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 16 credits.

Please see the Engineering Courses page for course descriptions.

Environmental Engineering Graduate Certificate (16 credits)

12 credits of Core Courses chosen from one of the following core areas of concentration:
Industrial Waste Management Core (Environmental Engineering Graduate Certificate)
Environmental Auditing Core (Environmental Engineering Graduate Certificate)
Modelling in Environmental Systems Core (Environmental Engineering Graduate Certificate)

4 credits of Elective Courses, with one course chosen from the lists below or other courses offered by the department:
Industrial Waste Management Electives (Environmental Engineering Graduate Certificate)
Environmental Auditing Electives (Environmental Engineering Graduate Certificate)
Modelling in Environmental Systems Electives (Environmental Engineering Graduate Certificate)

Notes:
-Core courses for which credits have been credited to another certificate or program must be replaced by elective courses in the area of concentration or by other courses on special permission.
-The program can be completed in one year. Students with high standing in their bachelor program and whose academic records satisfy the requirements for good standing in the Master's Program in Civil Engineering may apply for transfer to the Master's program.

Industrial Waste Management Core

- CIVI 6611 Environmental Engineering (4.00)
- CIVI 6481 Sustainable Management of Industrial Waste (4.00)
- ENGR 6971 Project and Report I (4.00)

Environmental Auditing Core

- CIVI 6491 Engineering Aspects of Site Remediation (4.00)
- CIVI 6661 Environmental Impact Assessment (4.00)
- CIVI 6671 Fate and Transport of Contaminants in the Environment (4.00)

Modelling in Environmental Systems Core (Environmental Engineering Graduate Certificate)

- CIVI 6601 Modelling in Building and Environmental Engineering (4.00)
- CIVI 6651 Water Pollution and Control (4.00)
- CIVI 6611 Environmental Engineering (4.00)

Industrial Waste Management Electives (Environmental Engineering Graduate Certificate)

- CIVI 6641 Unit Operations in Environmental Engineering (4.00)
- CIVI 6491 Engineering Aspects of Site Remediation (4.00)
- CIVI 6621 Engineering Aspects of Biological Treatment of Water and Air (4.00)
- CIVI 6631 Hazardous Material Management and Transportation (4.00)
- CIVI 6651 Water Pollution and Control (4.00)

Environmental Auditing Electives (Environmental Engineering Graduate Certificate)

- CIVI 6481 Sustainable Management of Industrial Waste (4.00)
- CIVI 6631 Hazardous Material Management and Transportation (4.00)
- POLI 605 Environmental Policy and Governance (3.00)

Modelling in Environmental Systems Electives

- CIVI 6671 Fate and Transport of Contaminants in the Environment (4.00)
- CIVI 6661 Environmental Impact Assessment (4.00)
- CIVI 6491 Engineering Aspects of Site Remediation (4.00)
- CIVI 6621 Engineering Aspects of Biological Treatment of Water and Air (4.00)
- CIVI 6641 Unit Operations in Environmental Engineering (4.00)
- BLDG 6721 Building Acoustics (4.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
 Program Specific Requirments. An Assessment Grade Point Average (AGPA) of at least 2.70 based on a minimum of 8 credits is required.
2. **Time Limit.** Please refer to the Academic Regulation page for further details regarding the Time Limits.
3. **Graduation**. To be eligible to graduate, students must have obtained a CGPA of at least 2.70.
 The program can be completed in one year. Students with high standing in their bachelor program and whose academic records satisfy the requirements for good standing in the Master's Program in Civil Engineering may apply for transfer to the Master's program.

Innovation, Technology and Society Graduate Certificate

Note: Admissions have been suspended.

Admission Requirements

- Bachelor's degree in any academic discipline, with a cumulative GPA of 3.00 or higher.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 15 credits.

Please see the Engineering Courses page for course descriptions.

Innovation, Technology and Society Graduate Certification (15 credits)

9 credits chosen from the Theory Core Courses
- ENCS 6041 Creativity, Innovation, and Critical Thinking (4.00)
- ENCS 6042 Communication Techniques for the Innovation Process (4.00)
- ENCS 6043 Seminar in Innovation Process (1.00)

6 credits chosen from the Practicum
- ENCS 6044 Practicum in Innovation Process (6.00)

The graduate certificate can be completed within an academic year.

Additional Degree Requirements

Courses: Candidates in the graduate certificate must take nine credits of core theory courses and six credits of practicum. Core courses that have been credited to another degree must be replaced by other courses acceptable under that degree program.

Performance: Students who have completed the nine core credits will be assessed before admission to ENCS 6044, Practicum in Innovation Process.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
 Program Specific Regulations. An Assessment Grade Point Average (AGPA) of at least 2.70 based on a minimum of 8 credits is required.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation:** To be eligible to graduate, students must have obtained a cumulative GPA of at least 2.70.

Chemical Engineering PhD

Admission Requirements

- Master's degree or equivalent with high standing in engineering or the sciences.
- Admission on a full-time basis.

Additional Admission Requirements

Holders of a bachelor's degree will, in general, be considered for admission to a master's program only. After completion of a minimum of two terms of full- time study, they may, upon application, be considered by the GCS Graduate Studies Committee for admission to a PhD program (please see Graduate Calendar regulations on accelerated admission to PhD programs).

The Department Graduate Studies Committee will determine the acceptability of an applicant for admission to the program and may require the applicant to do specific remedial course work, including the bridge course CHME 401 Principles of Chemical Engineering, and/or other course(s) to meet the program requirements.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Engineering Courses page for course descriptions.

Chemical Engineering PhD (90 credits)

4	credits of Required Course: • CHME 6981 Chemical Engineering Research Protocols and Safety (4.00)
8	credits chosen from the Chemical Engineering PhD Courses list. Note: Students may take a course outside the course list with permission of the Graduate Program Director. Students who take a three-credit course towards their course requirement of 12 credits must take the course • CHME 6001 Project in Chemical and Materials Engineering (1.00)to obtain the missing credit.
8	credits: • ENCS 8501 Comprehensive Examination (0.00) • ENCS 8511 Doctoral Research Proposal (6.00) • ENCS 8011 PhD Seminar (2.00)
70	credits: • ENGR 8911 Doctoral Research and Thesis (70.00)

Chemical Engineering PhD Courses (8 credits)

- CHME 6011 Advanced Transport Phenomena (4.00)
- CHME 6021 Advanced Chemical Engineering Thermodynamics (4.00)
- CHME 6031 Chemical Kinetics and Reaction Engineering (4.00)
- CHME 6041 Chemical Engineering Process Dynamics and Control (4.00)
- CHME 6051 Chemical Process Engineering and Design (4.00)
- CHME 6061 Advanced Biochemical Engineering (4.00)
- CHME 6071 Materials Science and Engineering (4.00)
- CHME 6081 Advanced Separation Processes (4.00)
- CHME 6091 Statistics for Chemical Engineering (4.00)
- CHME 6101 Advanced Battery Materials and Technologies (4.00)
- CHME 6111 Polymer Chemistry and Engineering (4.00)
- CHME 6131 Advanced Colloid and Interface Science and Engineering (4.00)

- CHME 6911 Topics in Chemical Engineering I (4.00)
- CHME 7911 Topics in Chemical Engineering II (4.00)
- ENCS 6021 Engineering Analysis (4.00)
- ENCS 6111 Numerical Methods (4.00)
- ENGR 6201 Fluid Mechanics (4.00)
- ENGR 6601 Principles of Solar Engineering (4.00)
- ENGR 6971 Project and Report I (4.00)
- MECH 6131 Conduction and Radiation Heat Transfer (4.00)
- MECH 6141 Heat Exchanger Design (4.00)
- MECH 6571 Corrosion and Oxidation of Metals (4.00)
- MECH 7101 Convection Heat Transfer (4.00)

Students may also choose from the following Topic Areas:
E03 - Systems and Control
E04 - Fluid Mechanics
E07 - Energy Conversion
E37 - Environmental Engineering
E52 - Thermodynamics and Heat Transfer
E57 - Composite Materials
E08 - Academic Communication Skills
E09 - Professional Leadership Skills
- CHEM 631 Computational Chemistry (3.00)

Note: Students may only select courses selected from the above Topic Areas that are not included in the Chemical Engineering MASc Core Courses list or the Chemical Engineering MASc Electives List.

Chemical Engineering MASc

Admission Requirements

- Bachelor's/baccalaureate degree (or equivalent) in engineering or the sciences with high standing (e.g., with honours, or the Concordia equivalent of a GPA of at least 3.00 on a scale of 4.30).

Additional Admission Requirements

The Department Graduate Studies Committee will determine the acceptability of an applicant for admission to the program and may require the applicant to do specific remedial coursework, including the bridge course CHME 401 Principles of Chemical Engineering, and/or other course(s) to meet the program requirements.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Chemical Engineering MASc (45 credits)

4	credits: • CHME 6981 Chemical Engineering Research Protocols and Safety (4.00)
12	credits total with a minimum of 4 credits chosen from the Chemical Engineering MASc Core Courses list and a maximum of 8 credits chosen from the Chemical Engineering MASc Electives List with permission of the Graduate Program Director. Students may take an elective course outside the Chemical Engineering MASc Electives List with permission of the Graduate Program Director.
	Students who take a three-credit course towards their requirement of 12 credits chosen from the Chemical Engineering MASc Core Courses list and the Chemical Engineering MASc Electives List: must take the one-credit course CHME 6001 - Project in Chemical and Materials Engineering to obtain the missing credit.
29	credits: • ENGR 8901 Master of Applied Science Research and Thesis (29.00)
	Note: According to the University regulations on transfer of credits, students who have completed a graduate Certificate or Diploma may have courses transferred into a MASc. Please refer to the Transfer Credits section of the Graduate Calendar for further information.

Chemical Engineering MASc Core Courses

- CHME 6011 Advanced Transport Phenomena (4.00)
- CHME 6021 Advanced Chemical Engineering Thermodynamics (4.00)
- CHME 6031 Chemical Kinetics and Reaction Engineering (4.00)
- CHME 6041 Chemical Engineering Process Dynamics and Control (4.00)
- CHME 6051 Chemical Process Engineering and Design (4.00)
- CHME 6071 Materials Science and Engineering (4.00)
- CHME 6081 Advanced Separation Processes (4.00)
- CHME 6121 Nanomaterials Science and Engineering (4.00)
- ENCS 6021 Engineering Analysis (4.00)

Chemical Engineering MASc Electives List

- CHME 6061 Advanced Biochemical Engineering (4.00)
- CHME 6091 Statistics for Chemical Engineering (4.00)
- CHME 6101 Advanced Battery Materials and Technologies (4.00)
- CHME 6111 Polymer Chemistry and Engineering (4.00)
- CHME 6131 Advanced Colloid and Interface Science and Engineering (4.00)
- CHME 6911 Topics in Chemical Engineering I (4.00)
- ENCS 6111 Numerical Methods (4.00)
- ENGR 6201 Fluid Mechanics (4.00)
- MECH 6131 Conduction and Radiation Heat Transfer (4.00)
- MECH 6141 Heat Exchanger Design (4.00)
- MECH 7101 Convection Heat Transfer (4.00)
- CHME 7911 Topics in Chemical Engineering II (4.00)
- ENGR 6601 Principles of Solar Engineering (4.00)
- ENGR 6971 Project and Report I (4.00)
- MECH 6571 Corrosion and Oxidation of Metals (4.00)
- CHEM 631 Computational Chemistry (3.00)

Students may also choose any courses not included in the Chemical Engineering MASc Core Courses from the following Topic Areas:
E03 - Systems and Control
E04 - Fluid Mechanics
E07 - Energy Conversion
E37 - Environmental Engineering
E52 - Thermodynamics and Heat Transfer
E57 - Composite Materials
Any course(s) listed in the following Topic Areas:
E08 - Academic Communication Skills
E09 - Professional Leadership Skills

Chemical Engineering Graduate Diploma

Admission Requirements

- Bachelor's degree (or equivalent) in engineering or the sciences with the Concordia equivalent of a GPA of at least 2.70 on a scale of 4.30.

Additional Admission Requirements

The Department Graduate Studies Committee will determine the acceptability of an applicant for admission to the program and may require the applicant to do specific remedial coursework, including the bridge course CHME 401 Principles of Chemical Engineering, and/or other course(s) to meet the program requirements.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Engineering Courses page for course descriptions.

Chemical Engineering Graduate Diploma (30 credits)

20 credits from the Chemical Engineering Graduate Diploma Core

10 credits minimum chosen from the Chemical Engineering Graduate Diploma Electives:
Students may take an elective course outside the elective list with permission of the Graduate Program Director.

Chemical Engineering Graduate Diploma Core (20 credits)

16 credits:

- CHME 6011 Advanced Transport Phenomena (4.00)
- CHME 6021 Advanced Chemical Engineering Thermodynamics (4.00)
- CHME 6031 Chemical Kinetics and Reaction Engineering (4.00)
- ENCS 6021 Engineering Analysis (4.00)

4 credits chosen from one of the following courses:
- CHME 6041 Chemical Engineering Process Dynamics and Control (4.00)
- CHME 6051 Chemical Process Engineering and Design (4.00)

Chemical Engineering Graduate Diploma Electives (10 credits)

10 credits minimum chosen from the following:
Chemical Engineering Graduate Diploma Elective List 1
Chemical Engineering Graduate Diploma Elective List 2
Chemical Engineering Graduate Diploma Elective List 3

Chemical Engineering Graduate Diploma Elective List 1

4 credits chosen from any courses listed in Topic Area E57 - Composite Materials or from the following list of Materials Engineering graduate courses:
- CHME 6101 Advanced Battery Materials and Technologies (4.00)
- CHME 6071 Materials Science and Engineering (4.00)

- CHME 6111 Polymer Chemistry and Engineering (4.00)
- CHME 6121 Nanomaterials Science and Engineering (4.00)
- CHME 6131 Advanced Colloid and Interface Science and Engineering (4.00)
- CHME 7911 Topics in Chemical Engineering II (4.00)
- ENGR 6601 Principles of Solar Engineering (4.00)
- MECH 6431 Introduction to Tribology (Wear, Friction and Lubrication) (4.00)
- MECH 6571 Corrosion and Oxidation of Metals (4.00)

Chemical Engineering Graduate Diploma Elective List 2

3 credits minimum with 4 credits maximum (one course) technical elective chosen from Chemical Engineering or from any other Engineering and Computer Science graduate program, or from the Chemistry, Physics, or Biology graduate programs.

Chemical Engineering Graduate Diploma Elective List 3

3 or 4 credits from the following list of Complementary Courses chosen from any 6000-level course(s) listed in the following Topic Areas:
E08 - Academic Communication Skills
E09 - Professional Leadership Skills.
Students may take an elective course outside the elective list with permission of the Graduate Program Director.

Additional Degree Requirements

Students who hold a Certificate in Chemical Engineering must complete at least 15 credits in this program to qualify with a Diploma in Chemical Engineering. According to the University regulations on transfer of credits, students who have completed a Certificate in a different discipline may have credits transferred into a Diploma. Please refer to the Transfer Credits section of the Graduate Calendar for further information.

Students transferring from a Master's to the Diploma in a similar area of study are granted a time limit of 2 years, less the number of years in the Master's, or 1 year, whichever is greater; or the equivalent for part-time study.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
 Program Specific Requirements. An Assessment Grade Point Average (AGPA) of at least 2.70, based on a minimum of 8 credits is required.
2. **Time limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation.** To be eligible to graduate, students must have obtained a CGPA of at least 2.70.

Chemical Engineering Graduate Certificate

Admission Requirements

- Bachelor's degree or equivalent in engineering or the sciences with the Concordia equivalent of a 2.70 GPA on a scale of 4.30.

Additional Admission Requirements

The Department Graduate Studies Committee will determine the acceptability of an applicant for admission to the program and may require the applicant to do specific remedial coursework, including the bridge course CHME 401 Principles of Chemical Engineering, and/or other course(s) to meet the program requirements.

Academic reference letters and a statement of purpose should be included in the application.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 15 credits.

Please see the Engineering Courses page for course descriptions.

Chemical Engineering Graduate Certificate (15 credits)

8 credits of Core Courses:
- CHME 6011 Advanced Transport Phenomena (4.00)
- ENCS 6021 Engineering Analysis (4.00)

4 credits chosen from one of the following two courses:
- CHME 6021 Advanced Chemical Engineering Thermodynamics (4.00)
- CHME 6031 Chemical Kinetics and Reaction Engineering (4.00)

3 credits minimum, with a maximum of 4 credits of Elective Courses chosen from one course from the list below, or any core Diploma, MEng, or MASc course in Chemical Engineering not included in the Certificate core course list
- CHME 6061 Advanced Biochemical Engineering (4.00)
- CHME 6081 Advanced Separation Processes (4.00)
- CHME 6091 Statistics for Chemical Engineering (4.00)
- CHME 6101 Advanced Battery Materials and Technologies (4.00)
- CHME 6111 Polymer Chemistry and Engineering (4.00)
- CHME 6131 Advanced Colloid and Interface Science and Engineering (4.00)
- CHME 6911 Topics in Chemical Engineering I (4.00)
- ENCS 6111 Numerical Methods (4.00)
- ENGR 6201 Fluid Mechanics (4.00)
- MECH 6131 Conduction and Radiation Heat Transfer (4.00)
- MECH 6141 Heat Exchanger Design (4.00)
- MECH 7101 Convection Heat Transfer (4.00)

Additional Degree Requirements

Students may take an elective course outside the elective list with permission of the Graduate Program Director.

Depending on full/part-time status, the program can be completed in one to three years. Students with high standing in their bachelor program and whose academic records satisfy the requirements for good standing in the Master's Program in Chemical Engineering may apply for transfer to the Master's program

Core courses for which credits have been credited to another certificate or program must be replaced by elective courses in the program or by other courses on special permission.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Graduate Calendar for a detailed review of the Academic Regulations.
 Program Specific Requirements. An Assessment Grade Point Average (AGPA) of at least 2.70, based on a minimum of 8 credits is required.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation.** To be eligible to graduate, students must have obtained a Cumulative Grade Point Average (CGPA) of at least 2.70.

Information and Systems Engineering PhD

Degree Requirements

Please see the Engineering Courses page for course descriptions.

Information and Systems Engineering PhD (90 credits)

78	credits from the Doctor of/Doctorate in Philosophy (PhD)
	Students must complete a minimum of 12 credits of course work at the 6000 or 7000 level as follows:
8	credits chosen from courses offered by the Gina Cody School of Engineering and Computer Science.
4	credits chosen from INSE courses, unless approved by the Graduate Program Director.

Information Systems Security MASc

Admission Requirements

- Bachelor's degree or equivalent in Computer Engineering, Electrical Engineering, Software Engineering, or Computer Science.

Additional Admission Requirements

Admission to the program is competitive and only applicants with high academic standing will be considered. Qualified applicants requiring prerequisite courses may be asked to take such courses in addition to their regular graduate program. The GCS Graduate Studies Committee, in consultation with the Institute, is responsible for the recommendation of all applications for admission.

Residence requirements. The minimum residence requirement for the Master's degree is three terms (one year) of full-time study, or the equivalent in part-time study.

Transfer from the Master of Engineering in Information Systems Security. Students, in good standing, who have completed a minimum of 12 credits in the Master of Engineering in Information Systems Security, may apply for a transfer to the Master of Applied Science in Information Systems Security.

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Applied Science (MASc) in the General Requirements for all Engineering and Computer Science Programs section.

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Information Systems Security MASc (45 credits)

12	credits of Core Courses • INSE 6110 Foundations of Cryptography (4.00) • INSE 6120 Crypto-Protocol and Network Security (4.00) • INSE 6130 Operating Systems Security (4.00)
4	credits chosen from courses approved by the student's supervisor(s), and either the Graduate Program Director of the Director of the Institute.
29	credits: • INSE 8901 Master of Applied Science Research and Thesis (29.00) In order to graduate, students must have a CGPA of at least 2.70.

Additional Degree Requirements

Co-op Thesis Option. Students have the option to do the thesis work within the industrial milieu through the Institute for Co-operative Education. The suggested schedule of the program is as follows: fall and winter terms will be dedicated to course work, followed by two or three terms for research and development in industry, culminating in one or two terms in the Institute for the writing and defence of the thesis. Each student in this case will have a supervisor from the Institute and a mentor from industry. The intellectual property will be managed according to the University policy.

Academic Regulations

In order to graduate, students must have a CGPA of at least 2.70.

Program of Study. The student will follow the proposed course sequence. In addition, students have to consult with their supervisor for selecting a research topic. Students can enter this program as Co-op students. See.

Credits. Additional credits may be required in some cases.

Transfer Credits. Students may be granted transfer academic credits for, in general, not more than eight credits taken in approved graduate studies prior to their entry into this program. A course submitted for transfer credit must be appropriate to the student's program of study at Concordia University. An application for such credit will be considered only at the time of admission.

Time Limit. Please refer to the Academic Regulation page for further details regarding the Time Limits.

Information Systems Security MEng

Admission Requirements

- Bachelor's degree or equivalent in Computer Engineering, Electrical Engineering, Software Engineering, or Computer Science.

Additional Admission Requirements

Admission to the program is competitive and only applicants with high academic standing will be considered. Qualified applicants requiring prerequisite courses may be asked to take such courses in addition to their regular graduate program. The GCS Graduate Studies Committee, in consultation with the Institute, is responsible for the recommendation of all applications for admission.

Residence requirements. The minimum residence requirement for the Master's degree is three terms (one year) of full-time study, or the equivalent in part-time study.

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master's programs in the Gina Cody School of Engineering and Computer Science.

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Information Systems Security MEng (45 credits)

12 credit of Core Courses
- INSE 6110 Foundations of Cryptography (4.00)
- INSE 6120 Crypto-Protocol and Network Security (4.00)
- INSE 6130 Operating Systems Security (4.00)

16 credits minimum chosen from courses offered by CIISE from topic area E69 - Information Systems Security

Remaining credits chosen from other courses offered by the Gina Cody School of Engineering and Computer Science. Students shall only take one of the following courses:
- INSE 6961 Graduate Seminar in Information and Systems Engineering (1.00)ENCS 6931
- ENGR 6991 Project and Report III (5.00)

Academic Regulations

In order to graduate, students must have a CGPA of at least 2.70.

Credits. Additional credits may be required in some cases.

Transfer Credits. Students may be granted transfer academic credits for, in general, not more than eight credits taken in approved graduate studies prior to their entry into this program. A course submitted for transfer credits must be appropriate to the student's program study at Concordia University. An application for such credit will be considered only at the time of admission.

Time Limit. Please refer to the Academic Regulation page for further details regarding the Time Limits.

Quality Systems Engineering MASc

Admission Requirements

- Bachelor's degree or equivalent in Mechanical Engineering, Industrial Engineering, Electrical Engineering, Building Engineering, Civil Engineering, Environmental Engineering, Software Engineering, Computer Science, or any engineering or science discipline provided that the student has the appropriate background.

Additional Admission Requirements

Admission to this program is competitive and only applicants with high academic standing will be considered. Qualified applicants requiring prerequisite courses may be asked to take such courses in addition to their regular graduate program. The GCS Graduate Studies Committee, in consultation with the Institute, is responsible for the recommendation of all applications for admission.

Residence Requirements. The minimum residence requirement for the Master's degree is three terms (one year) of full-time study, or the equivalent in part-time study.

Transfer from the Master of Engineering in Quality Systems Engineering. Students, in good standing, who have completed a minimum of 12 credits in the Master of Engineering in Quality Systems Engineering, may apply for a transfer to the Master of Applied Science in Quality Systems Engineering.

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Applied Science (MASc).

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Quality Systems Engineering MASc (45 credits)

12	credits of Core Courses • INSE 6210 Total Quality Methodologies in Engineering (4.00) • INSE 6220 Advanced Statistical Approaches to Quality (4.00) • INSE 6230 Total Quality Project Management (4.00)
4	remaining credits may be chosen from courses approved by the student's supervisor(s), and either the Graduate Program Director or the Director of the Institute.
29	credits: • INSE 8901 Master of Applied Science Research and Thesis (29.00)

Additional Degree Requirements

Co-op Thesis Option. Students have the option to do the thesis work within the industrial milieu through the Institute for Co-operative Education. The suggested schedule of the program is as follows: Fall and Winter terms will be dedicated to course work, followed by two or three terms for research and development in industry, culminating in one or two terms in the Institute for the writing and the defence of the thesis. Each student in this case will have a supervisor from the Institute and a mentor from industry. The intellectual property will be managed according to the University policy.

Academic Regulations

In order to graduate, students must have a CGPA of at least 2.70.

Program of Study. The student will follow the proposed course sequence. In addition, students have to consult with their supervisor for

selecting a research topic. Students can enter this program as Co-op students.

Credits. Additional credits may be required in some cases.

Transfer Credits. Students may be granted transfer academic credits for, in general, not more than eight credits taken in approved graduate studies prior to their entry into this program. A course submitted for transfer credit must be appropriate to the student's program of study at Concordia University. An application for such credit will be considered only at the time of admission.

Time Limit. Please refer to the Academic Regulation page for further details regarding the Time Limits.

Quality Systems Engineering MEng

Admission Requirements

- Bachelor's degree or equivalent in Mechanical Engineering, Industrial Engineering, Electrical Engineering, Building Engineering, Civil Engineering, Environmental Engineering, Software Engineering, Computer Science, or any engineering or science discipline provided that the student has the appropriate background.

Additional Admission Requirements

Admission to this program is competitive and only applicants with high academic standing will be considered. Qualified applicants requiring prerequisite courses may be asked to take such courses in addition to their regular graduate program. The GCS Graduate Studies Committee, in consultation with the Institute, is responsible for the recommendation of all applications for admission.

Residence Requirements. The minimum residence requirement for the Master's degree is three terms (one year) of full-time study, or the equivalent in part-time study.

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Engineering (MEng).

Fully-qualified candidates are required to complete a minimum of 45 credits.

Students must complete a total of 45 credits of course work at the 6000 or 7000 level.

Please see the Engineering Courses page for course descriptions.

Quality Systems Engineering MEng (45 credits)

12 credits of Core Courses
- INSE 6210 Total Quality Methodologies in Engineering (4.00)
- INSE 6220 Advanced Statistical Approaches to Quality (4.00)
- INSE 6230 Total Quality Project Management (4.00)

16 credits minimum chosen from courses offered by CIISE from the following Topic Areas:
E66 - Systems Engineering
E68 - Quality Systems Engineering
E70 - Information Systems Engineering E02 - Developments In Engineering

Remaining credits chosen from other courses offered by the Gina Cody School of Engineering and Computer Science. Students shall only take one of the following courses:
- INSE 6961 Graduate Seminar in Information and Systems Engineering (1.00)ENCS 6931
- ENGR 6991 Project and Report III (5.00)

Academic Regulations

In order to graduate, students must have a CGPA of at least 2.70.

Credits. Additional credits may be required in some cases.

Transfer Credits. Students may be granted transfer academic credits for, in general, not more than eight credits taken in approved graduate studies prior to their entry into this program. A course submitted for transfer credit must be appropriate to the student's program of study at Concordia University. An application for such credit will be considered only at the time of admission.

Time Limit. Please refer to the Academic Regulations page for further details regarding the Time Limits.

3D Graphics and Game Development Graduate Certificate

Note: Admissions have been suspended.

Admission Requirements

- Bachelor of Engineering or Computer Science with a CGPA of at least 3.00 or equivalent, as well as knowledge in software engineering/development.

Additional Admission Requirements

The Institute will recommend on the acceptability of an applicant for admission to the program and may require the applicant to do specific remedial course work to meet the program requirements.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 16 credits.

Please see the Engineering Courses page for course descriptions.

3D Graphics and Game Development Graduate Certificate (16 credits)

16 credits of Core Courses:
- INSE 6510 Video Game Technology and Development (4.00)
- COMP 6761 Advanced 3D Graphics for Game Programming (4.00)
- INSE 6530 3D Graphics and Computer Animation for Game Design (4.00)
- COMP 7661 Advanced Rendering and Animation (4.00)

Additional Degree Requirements

Special Permission must be obtained from the Concordia Institute for Information Systems Engineering.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
 Program Specific Regulations. An Assessment Grade Point Average (AGPA) of at least 2.70 based on a minimum of 8 credits is required.
2. **Graduation.** To be eligible to graduate, students must have obtained a CGPA of at least 2.70.

Service Engineering and Network Management Graduate Certificate

Note: Admissions have been suspended.

Admission Requirements

- Bachelor of Engineering or Computer Science with a CGPA of at least 3.00 or equivalent as well as a good knowledge in software engineering/development.

Additional Admission Requirements

The Institute will recommend on the acceptability of an applicant for admission to the program and may require the applicant to do specific remedial course work to meet the program requirements.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 20 credits.

Please see the Engineering Courses page for course descriptions.

Service Engineering and Network Management Graduate Certificate (20 credits)

16 credits of Core Courses:
- INSE 6120 Crypto-Protocol and Network Security (4.00)ELEC 6861
- INSE 7110 Value Added Service Engineering in Next Generation Networks (4.00)
- INSE 7120 Advanced Network Management (4.00)

4 credits of Electives chosen from the elective list or other courses offered by the Institute or other ENCS departments:
- INSE 6100 Advanced Java Platforms (4.00)COEN 7311

Additional Degree Requirements

Prerequisites. Special Permission must be obtained from the Concordia Institute for Information Systems Engineering.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
 Program Specific Regulations. An Assessment Grade Point Average (AGPA) of at least 2.70 based on a minimum of 8 credits is required.
2. **Graduation.** To be eligible to graduate, students must have obtained a CGPA of at least 2.70.

Electrical and Computer Engineering PhD

Degree Requirements

Candidates are required to complete a minimum of 90 credits.

Please see the Engineering Courses page for course descriptions.

Electrical and Computer Engineering PhD (90 credits)

See the description of the Doctor of/Doctorate in Philosophy (PhD) in the General Requirements for all Programs .

Electrical and Computer Engineering MASc

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master of/Magistrate in Applied Science (MASc) .

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Electrical and Computer Engineering MASc (45 credits)

16 credits minimum of coursework chosen from the Engineering Courses section, approved by the student's supervisor and either the Graduate Program Director or the chair of the department.

29 credits
- ENGR 8901 Master of Applied Science Research and Thesis (29.00)

Electrical and Computer Engineering MEng

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Engineering (MEng) .

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions.

Electrical and Computer Engineering MEng (45 credits)

5 credits from the Topic Area E09 - Professional Leadership Skills

24 credits selected from the Concentrations for the Electrical and Computer Engineering MEng list

16 credits chosen from the Topic Areas for the Electrical and Computer Engineering MEng

Concentrations for the Electrical and Computer Engineering MEng (24 credits)

Students must select two concentrations from the Topic Areas listed below, with 12 credits taken from each of the two Topic Areas selected:

E03 - Systems and Control
E42 - Communication Systems and Networks
E43 - Micro-Devices and Fabrication Processes
E44 - Fields, Waves and Optoelectronics
E45 - Electrical Power Engineering
E47 - Signal Processing
E48 - Computing Systems
F03 - Microelectronic Systems

Topic Areas for the Electrical and Computer Engineering MEng (16 credits)

16 credits chosen from the following Topic Areas:

E01 - Mathematical Methods
E03 - Systems and Control
E10 - Robotics
E42 - Communication Systems and Networks
E43 - Micro-Devices and Fabrication Processes
E44 - Fields, Waves and Optoelectronics
E45 - Electrical Power Engineering
E47 - Signal Processing
E48 - Computing Systems
F03 - Microelectronic Systems
ELEC/COEN courses in E02 - Developments In Engineering

Students may take a maximum of 8 credits from the following courses:

- ENGR 6971 Project and Report I (4.00)
- ENGR 6981 Project and Report II (4.00)
- ENCS 6921 Industrial Stage and Training (4.00)

Industrial Engineering PhD

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Engineering Courses page for course descriptions.

Industrial Engineering PhD (90 credits)

See the description of the Doctor of/Doctorate in Philosophy (PhD) in the General Requirements for all Programs section.

Mechanical Engineering PhD

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Engineering Courses page for course descriptions.

Mechanical Engineering PhD (90 credits)

See the description of the Doctor of/Doctorate in Philosophy (PhD) in the General Requirements for all Programs section.

Aerospace MEng

Admission Requirements

- Bachelor's degree in engineering or equivalent with high standing.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions and prerequisites.

Aerospace MEng (45 credits)

36 credits of Coursework at the 6000 or 7000 level (2 courses must be taken outside Concordia). The selection of courses must be approved by the Program Director.

12 credits of General/Preparatory Core Courses:

- ENCS 6021 Engineering Analysis (4.00)
- INDU 6351 System Reliability (4.00)
- ENGR 6131 Linear Systems (4.00)
- ENGR 6201 Fluid Mechanics (4.00)
- ENGR 6421 Standards, Regulations and Certification (4.00)
- ENGR 6441 Materials Engineering for Aerospace (4.00)
- ENGR 6461 Avionic Navigation Systems (4.00)
- ENGR 6501 Applied Elasticity (4.00)
- ENGR 7181 Digital Control of Dynamic Systems (4.00)
- MECH 6451 Computer-Aided Mechanical Design (4.00)
- MECH 6481 Aeroelasticity (4.00)
- MECH 6791 Aircraft Hydro-Mechanical and Fuel Systems (4.00)
- MECH 6891 Aircraft Pneumatic and Electrical Power Systems (4.00)
- MECH 6941 Concurrent Engineering in Aerospace Systems (4.00)
- ENCS 6141 Probabilistic Methods in Design (4.00)
- MECH 7012 Applied Numerical Computing I (1.00)
- MECH 7013 Applied Numerical Computing II (1.00)

Any request for change on this requirement must be approved by the program director. Depending on the background, it may be required for the student to complete certain specified preparatory courses as part of their program.

24 credits of Specialization Courses (from one or more areas):

Aeronautics and Propulsion
Avionics and Control
Structures and Materials
Space Engineering

- MECH 7012 Applied Numerical Computing I (1.00)
- MECH 7013 Applied Numerical Computing II (1.00)

3 credits minimum with a maximum of 6 credits chosen from:

- MECH 6961 Aerospace Case Study I (3.00)
- MECH 6971 Aerospace Case Study II (3.00)

6 credits Industrial Stage:

- ENGR 7961 Industrial Stage and Training (6.00)

Aeronautics and Propulsion

- ENGR 6251 The Finite Difference Method in Computational Fluid Dynamics (4.00)
- ENGR 6261 The Finite Element Method in Computational Fluid Dynamics (4.00)
- MECH 6081 Fuel Control Systems for Combustion Engines (4.00)
- MECH 6111 Gas Dynamics (4.00)
- MECH 6121 Aerodynamics (4.00)
- MECH 6161 Gas Turbine Design (4.00)
- MECH 6171 Turbomachinery and Propulsion (4.00)
- MECH 6191 Combustion (4.00)
- MECH 6231 Helicopter Flight Dynamics (4.00)
- MECH 6241 Operational Performance of Aircraft (4.00)

Avionics and Control

0
- COEN 6711 Microprocessors and Their Applications (4.00)
- ENCS 6161 Probability and Stochastic Processes (4.00)Note: Students may not take both COEN 6711 and MECH 6621.
- ELEC 6141 Wireless Communications (4.00)
- ELEC 6301 Advanced Electromagnetics (4.00)
- ELEC 6351 Modern Antenna Theory (4.00)
- ELEC 6361 Acoustics (4.00)
- ELEC 6381 Techniques in Electromagnetic Compatibility (4.00)
- ELEC 6601 Digital Signal Processing (4.00)
- ELEC 6881 Fundamentals and Applications of MIMO Communications (4.00)
- ENGR 6411 Robotic Manipulators I: Mechanics (4.00)
- ENGR 7181 Digital Control of Dynamic Systems (4.00)
- ENGR 7401 Robotic Manipulators II: Control (4.00)
- ENGR 7461 Avionic Systems Design (4.00)
- INDU 6411 Human Factors Engineering (4.00)
- MECH 6021 Design of Industrial Control Systems (4.00)
- MECH 6061 Analysis and Design of Hydraulic Control Systems (4.00)
- MECH 6091 Flight Control Systems (4.00)
- MECH 6621 Microprocessors and Applications (4.00)
- MECH 6631 Industrial Automation (4.00)

Structures and Materials

0
- ENGR 6311 Vibrations in Machines and Structures (4.00)
- ENGR 6511 Fundamentals of Finite Element Analysis of Structures (4.00)
- ENGR 6531 The Finite Element Method in Structural Mechanics (4.00)
- ENGR 6541 Structural Dynamics (4.00)
- ENGR 7331 Random Vibrations (4.00)
- MECH 6301 Vibration Problems in Rotating Machinery (4.00)
- MECH 6321 Optimum Design of Mechanical Systems (4.00)
- MECH 6431 Introduction to Tribology (Wear, Friction and Lubrication) (4.00)
- MECH 6441 Stress Analysis in Mechanical Design (4.00)
- MECH 6471 Aircraft Structures (4.00)
- MECH 6481 Aeroelasticity (4.00)
- MECH 6491 Engineering Metrology and Measurement Systems (4.00)
- MECH 6501 Advanced Materials (4.00)

- MECH 6521 Manufacturing of Composites (4.00)
- MECH 6561 High Strength Materials (4.00)
- MECH 6581 Mechanical Behaviour of Polymer Composite Materials (4.00)
- MECH 6601 Testing and Evaluation of Polymer Composite Materials and Structures (4.00)
- MECH 7501 Design Using Composite Materials (4.00)

Space Engineering

- ENGR 6951 Seminar on Space Studies (4.00)
- ENGR 7201 Micro-Gravity Fluid Dynamics (4.00)
- MECH 6251 Space Flight Mechanics and Propulsion Systems (4.00)

Additional Degree Requirements

For other courses available from the participating universities, consult their listings.

Students must complete a minimum of 45 credits of academic work consisting of: 36 credits of course work in the 6000 or 7000 level (2 courses must be taken outside Concordia), Aerospace Case Study (minimum 3 credits) and an Industrial Stage (6 credits). The selection of courses must be approved by the program director. For course prerequisites, refer to the course descriptions.

Note: Some graduate courses are content equivalent with specified undergraduate courses. These courses are not available for credit to students who have completed the undergraduate equivalent. Refer to the course descriptions for details.

Specialization Courses. Students should consult the program director at their home university for the selection of courses to suit their area of specialization and need not confine their choice to any one area. A minimum of two courses are to be taken outside of Concordia (minimum 3 credits per course), at least one each from any two of the participating universities. Courses must be chosen from the equivalent Master of Aerospace Engineering program of the participating universities. For courses available from the participating universities, consult their listings and request permission for limited enrolment courses. A second Aerospace Case Study course may be considered as a specialization course.

Aerospace Case Study. These courses, organized by CIMGAS, are conducted by experts from industry, and are given at one of the participating universities. The material given in a particular case study course might be offered only once. It is, therefore, the responsibility of the student to choose an appropriate course when it is offered. Space in some case study courses may be limited.

Industrial Stage and Training. There may be some restrictions placed on students chosen for the industry sponsored “stage.” For those students who are unable to obtain an industrial stage, it is possible to take ENGR 7961 for a project carried out at the university. Such students must obtain the approval of the program director.

Career Prospects

In Montreal, graduates have found work in companies such as Pratt & Whitney Canada, Bell Helicopter, CAE Electronics, Bombardier Aerospace, and others. They hold positions as varied as consulting engineers, aircraft designers, manufacturing plant managers, vice presidents, and chief executive officers. Some have also gone on to form their own companies, while others have taken jobs across Canada and abroad. A number of our graduates hold teaching positions in several universities across North America and in other countries.

Industrial Engineering MASc

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Applied Science (MASc).

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions and prerequisites.

Industrial Engineering MASc (45 credits)

16 credits minimum chosen from the Gina Cody School of Engineering and Computer Science Courses section, approved by the student's supervisor and either the Graduate Program Director or the Chair of the Department.

29 credits:
- ENGR 8901 Master of Applied Science Research and Thesis (29.00)

Industrial Engineering MEng

Admission Requirements

- Bachelor's degree in engineering or equivalent with high standing.

Additional Admission Requirements

Option I. Engineering Management.

- Those applicants who are currently employed as engineers must have a minimum two years full-time relevant work experience.
- Those applicants who are currently not employed must have a minimum of five years work experience as an engineer.

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Engineering (MEng)

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions and prerequisites.

Industrial Engineering MEng (45 credits)

45 credits choosen from one of the following options:
Option I: Engineering Management
Option II: Lean Systems Engineering
Option III. Supply Chain Engineering
Option IV. Industrial Optimization and Systems Analytics
Option V. Reliability and Maintenance Engineering
If no option is selected, students must follow Option VI. Industrial Engineering General Stream
Courses must be selected as shown below.

Option I: Engineering Management (45 credits)

20 credits minimum chosen from Industrial Engineering Area Courses:
- INDU 6121 Applied Optimization (4.00)
- INDU 6151 Decision Models in Service Sector (4.00)
- INDU 6211 Production Systems and Inventory Control (4.00)
- INDU 6241 Lean Manufacturing (4.00)
- INDU 6310 Applied Probability and Statistics for Engineers (4.00)
- INDU 6311 Discrete System Simulation (4.00)
- INDU 6321 Introduction to Six Sigma (4.00)
- INDU 6391 Reliability and Maintenance for Design and Manufacturing (4.00)
- INSE 6230 Total Quality Project Management (4.00)

3 credits of Management Area Core Courses
- MBA 640 On Ramp (0.00)
- MBA 641 Responsible Manager (3.00)

6 credits minimum chosen from Management Area Elective Courses
- MBA 642 Financial Reporting for Responsible Decision Making (3.00)
- MBA 643 Managerial Analytics (3.00)
- MBA 645 Economics for Organizational Decision Making (3.00)

16 credits Industrial Stage, Project and Report

- INDU 6991 Engineering Management Industrial Stage I (8.00)
- INDU 6992 Engineering Management Industrial Stage II (8.00)

Industrial stages must be completed with a company, governmental organization or a non-government organization (NGO). Students are responsible for finding their projects. An industry supervisor is highly recommended. The course coordinator serves as the main academic supervisor.

Option II: Lean Systems Engineering (45 credits)

25 credits of Industrial Engineering Core Courses:

- INDU 6121 Applied Optimization (4.00)
- INDU 6211 Production Systems and Inventory Control (4.00)
- INDU 6310 Applied Probability and Statistics for Engineers (4.00)
- INDU 6311 Discrete System Simulation (4.00)
- INDU 6990 Industrial Engineering Capstone (8.00)
- ENGR 7011 Graduate Seminar in Mechanical and Industrial Engineering (1.00)

16 credits Area Courses:

- INDU 6221 Lean Enterprise (4.00)
- INDU 6241 Lean Manufacturing (4.00)
- INDU 6321 Introduction to Six Sigma (4.00)
- INDU 6341 Advanced Concepts in Quality Improvement (4.00)

4 credits chosen from Elective Courses:
INDU courses (Topic Area E12 - Industrial Engineering)
MECH courses
ENCS courses (Topic Area E01 - Mathematical Methods)

Option III. Supply Chain Engineering (45 credits)

25 credits of Industrial Engineering Core Courses

- INDU 6121 Applied Optimization (4.00)
- INDU 6211 Production Systems and Inventory Control (4.00)
- INDU 6310 Applied Probability and Statistics for Engineers (4.00)
- INDU 6311 Discrete System Simulation (4.00)
- INDU 6990 Industrial Engineering Capstone (8.00)
- ENGR 7011 Graduate Seminar in Mechanical and Industrial Engineering (1.00)

16 credits minimum chosen from Area Courses

- INDU 6141 Logistics Network Models (4.00)
- INDU 6151 Decision Models in Service Sector (4.00)
- INDU 6161 Design and Operations of Supply Chain Networks (4.00)
- INDU 6251 Facilities Planning and Warehouse Operations (4.00)

4 credits chosen from Elective Courses:
INDU courses (Topic Area E12 - Industrial Engineering)
MECH courses
ENCS courses (Topic Area E01 - Mathematical Methods

Option IV. Industrial Optimization and Systems Analytics (45 credits)

25 credits of Industrial Engineering Core Courses

- INDU 6121 Applied Optimization (4.00)
- INDU 6211 Production Systems and Inventory Control (4.00)
- INDU 6310 Applied Probability and Statistics for Engineers (4.00)
- INDU 6311 Discrete System Simulation (4.00)
- INDU 6990 Industrial Engineering Capstone (8.00)
- ENGR 7011 Graduate Seminar in Mechanical and Industrial Engineering (1.00)

16 credits of Area Courses

- INDU 6111 Theory of Operations Research (4.00)
- INDU 6361 Discrete Optimization (4.00)
- INDU 6371 Stochastic Optimization (4.00)
- INDU 6611 Applied Industrial Systems Analytics (4.00)

4 credits chosen from Elective Courses:
INDU courses (Topic Area E12 - Industrial Engineering)
MECH Courses
ENCS courses (Topic Area E01 - Mathematical Methods)

Option V. Reliability and Maintenance Engineering (45 credits)

25 credits of Industrial Engineering Core Courses

- INDU 6121 Applied Optimization (4.00)
- INDU 6211 Production Systems and Inventory Control (4.00)
- INDU 6310 Applied Probability and Statistics for Engineers (4.00)
- INDU 6311 Discrete System Simulation (4.00)
- INDU 6990 Industrial Engineering Capstone (8.00)
- ENGR 7011 Graduate Seminar in Mechanical and Industrial Engineering (1.00)

16 credits of Area Courses:

- INDU 6351 System Reliability (4.00)
- INDU 6381 Applications of Reliability Engineering (4.00)
- INDU 6391 Reliability and Maintenance for Design and Manufacturing (4.00)
- INDU 6421 Systems Safety Engineering and Management (4.00)

4 credits chosen from Elective Courses:
INDU courses (Topic Area E12 - Industrial Engineering)
MECH courses
ENCS courses (Topic Area E01 - Mathematical Methods

Option VI. Industrial Engineering General Stream (45 credits)

25 credits of Industrial Engineering Core Courses

- INDU 6121 Applied Optimization (4.00)
- INDU 6211 Production Systems and Inventory Control (4.00)
- INDU 6310 Applied Probability and Statistics for Engineers (4.00)
- INDU 6311 Discrete System Simulation (4.00)
- INDU 6990 Industrial Engineering Capstone (8.00)

	• ENGR 7011 Graduate Seminar in Mechanical and Industrial Engineering (1.00)
20	credits chosen from Elective Courses: INDU courses (Topic Area E12 - Industrial Engineering) MECH courses ENCS courses (Topic Area E01 - Mathematical Methods)

Mechanical Engineering MASc

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Applied Science (MASc) .

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions and prerequisites.

Mechanical Engineering MASc (45 credits)

16 credits from Coursework chosen from the Engineering Courses section, approved by the student's supervisor and either the Graduate Program Director or the Chair of the Department.

29 credits:
- ENGR 8901 Master of Applied Science Research and Thesis (29.00)

Mechanical Engineering MEng

Degree Requirements

The requirements described here are in addition to the general degree requirements for the Master/Magisteriate in Engineering (MEng) .

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Engineering Courses page for course descriptions and prerequisites.

Mechanical Engineering MEng (45 credits)

16 credits minimum chosen from courses listed in one of the following specialization areas:

Industrial Control Systems
Materials and Composites
Mechanical Systems
Thermofluids Engineering

20 credits minimum chosen from the following Topic Areas:

E01 - Mathematical Methods
E03 - Systems and Control
E04 - Fluid Mechanics
E05 - Dynamics and Vibrations of Mechanical and Biomechanical Systems
E06 - Structural Mechanics
E10 - Robotics
E11 - Aeronautics and Astronautics
E12 - Industrial Engineering
E51 - Industrial Control and Automation
E52 - Thermodynamics and Heat Transfer
E53 - Machine Design and Production
E54 - Materials Engineering and Processing
E56 - Ground Vehicle Dynamics
E57 - Composite Materials
E58 - Chemical Process Engineering
MECH courses in E02 - Developments In Engineering
E63 - Project, Report And Industrial Training (ENCS 6921 or any of ENGR 6971, ENGR 6981 and ENGR 6991).
Students must obtain approval from the Aerospace Program Director for all the courses listed in topic area E11 - Aeronautics and Astronautics.

9 credits maximum of remaining credits chosen from:

• ENGR 7011 Graduate Seminar in Mechanical and Industrial Engineering (1.00)

or courses chosen from other Topic Areas in the Engineering Courses section. (The student must obtain written approval from the Department that offers the course).

Industrial Control Systems

- MECH 6021 Design of Industrial Control Systems (4.00)
- MECH 6061 Analysis and Design of Hydraulic Control Systems (4.00)
- MECH 6621 Microprocessors and Applications (4.00)
- MECH 6631 Industrial Automation (4.00)
- ENGR 6071 Switched and Hybrid Control Systems (4.00)
- ENGR 6301 Advanced Dynamics (4.00)

- ENGR 6411 Robotic Manipulators I: Mechanics (4.00)

Materials and Composites

- MECH 6441 Stress Analysis in Mechanical Design (4.00)
- MECH 6501 Advanced Materials (4.00)
- MECH 6511 Mechanical Forming of Metals (4.00)
- MECH 6521 Manufacturing of Composites (4.00)
- MECH 6541 Joining Processes and Nondestructive Testing (4.00)
- MECH 6561 High Strength Materials (4.00)
- MECH 6581 Mechanical Behaviour of Polymer Composite Materials (4.00)

Mechanical Systems

- MECH 6431 Introduction to Tribology (Wear, Friction and Lubrication) (4.00)
- MECH 6481 Aeroelasticity (4.00)
- MECH 6751 Vehicle Dynamics (4.00)
- MECH 6761 Vehicular Internal Combustion Engines (4.00)
- MECH 7711 Handling and Stability of Road Vehicles (4.00)
- ENGR 6301 Advanced Dynamics (4.00)
- ENGR 6311 Vibrations in Machines and Structures (4.00)

Thermofluids Engineering

- MECH 6111 Gas Dynamics (4.00)
- MECH 6121 Aerodynamics (4.00)
- MECH 6131 Conduction and Radiation Heat Transfer (4.00)
- MECH 6171 Turbomachinery and Propulsion (4.00)
- MECH 6181 Heating, Air Conditioning and Ventilation (4.00)
- ENGR 6201 Fluid Mechanics (4.00)
- ENGR 6261 The Finite Element Method in Computational Fluid Dynamics (4.00)

Mechanical Engineering Graduate Certificate

Admission Requirements

- Bachelor's degree in engineering with above-average standing.

Additional Admission Requirements

The GCS Graduate Studies Committee will determine the acceptability of an applicant for admission to the program and may require the applicant to do specific remedial course work to meet the program requirements.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 16 credits.

The Graduate Certificate program can be completed in one year. Students with high standing in their Bachelor's program and whose academic records satisfy the requirements for Good Standing in the Master's program in Mechanical Engineering (see the General Requirements for all Programs section) may apply for transfer to the Master's program.

Please see the Engineering Courses page for course descriptions and prerequisites.

Mechanical Engineering Graduate Certificate (16 credits)

12 credits chosen from one of the following concentrations:
Mechanical Engineering Graduate Certificate Aerospace Courses
Mechanical Engineering Graduate Certificate Composite Materials Courses
Mechanical Engineering Graduate Certificate Controls and Automation Courses
Mechanical Engineering Graduate Certificate Theoretical and Computational Fluid Dynamics Courses
Mechanical Engineering Graduate Certificate Manufacturing Systems Courses

4 credits chosen from the Mechanical Engineering Graduate Certificate Elective Courses

Mechanical Engineering Graduate Certificate Aerospace Courses (12 credits)

- MECH 6091 Flight Control Systems (4.00)
- MECH 6121 Aerodynamics (4.00)
- MECH 6161 Gas Turbine Design (4.00)
- MECH 6171 Turbomachinery and Propulsion (4.00)
- MECH 6231 Helicopter Flight Dynamics (4.00)
- MECH 6241 Operational Performance of Aircraft (4.00)
- ENGR 6201 Fluid Mechanics (4.00)
- ENGR 6421 Standards, Regulations and Certification (4.00)
- ENGR 6441 Materials Engineering for Aerospace (4.00)
- ENGR 6461 Avionic Navigation Systems (4.00)

The following courses cannot be taken for credit by students who have completed the undergraduate equivalent.
- MECH 6121 Aerodynamics (4.00)
- MECH 6161 Gas Turbine Design (4.00)
- MECH 6171 Turbomachinery and Propulsion (4.00)

Mechanical Engineering Graduate Certificate Composite Materials Courses (12 credits)

- MECH 6441 Stress Analysis in Mechanical Design (4.00)The following courses cannot be taken for credit by students who have

- MECH 6501 Advanced Materials (4.00)completed the undergraduate equivalent: MECH 6521, MECH 6581.
- MECH 6521 Manufacturing of Composites (4.00)
- MECH 6581 Mechanical Behaviour of Polymer Composite Materials (4.00)
- MECH 6601 Testing and Evaluation of Polymer Composite Materials and Structures (4.00)

Mechanical Engineering Graduate Certificate Controls and Automation Courses (12 credits)

- MECH 6021 Design of Industrial Control Systems (4.00)
- MECH 6061 Analysis and Design of Hydraulic Control Systems (4.00)
- MECH 6081 Fuel Control Systems for Combustion Engines (4.00)
- MECH 6091 Flight Control Systems (4.00)
- MECH 6621 Microprocessors and Applications (4.00)
- ENGR 6411 Robotic Manipulators I: Mechanics (4.00)
- ENGR 6461 Avionic Navigation Systems (4.00)

The following courses cannot be taken for credit by students who have completed the undergraduate equivalent: MECH 6021, MECH 6061, MECH 6621, ENGR 6411.

Mechanical Engineering Graduate Certificate Theoretical and Computational Fluid Dynamics Courses (12 credits)

- ENGR 6201 Fluid Mechanics (4.00)
- ENGR 6251 The Finite Difference Method in Computational Fluid Dynamics (4.00)
- ENGR 6261 The Finite Element Method in Computational Fluid Dynamics (4.00)
- MECH 6101 Kinetic Theory of Gases (4.00)
- MECH 6111 Gas Dynamics (4.00)
- MECH 6121 Aerodynamics (4.00)

The following courses cannot be taken for credit by students who have completed the undergraduate equivalent: MECH 6111, MECH 6121.

Mechanical Engineering Graduate Certificate Manufacturing Systems Courses (12 credits)

- INDU 6341 Advanced Concepts in Quality Improvement (4.00)
- INDU 6351 System Reliability (4.00)
- MECH 6421 Metal Machining and Surface Technology (4.00)
- MECH 6431 Introduction to Tribology (Wear, Friction and Lubrication) (4.00)
- MECH 6511 Mechanical Forming of Metals (4.00)
- MECH 6191 Combustion (4.00)

The following courses cannot be taken for credit by students who have completed the undergraduate equivalent: MECH 6341, MECH 6511.

Mechanical Engineering Graduate Certificate Elective Courses (4 credits)

4 credits chosen from the courses listed or from core courses of any other areas of concentration:

- ELEC 6141 Wireless Communications (4.00)
- INDU 6111 Theory of Operations Research (4.00)
- INDU 6411 Human Factors Engineering (4.00)
- ENCS 6161 Probability and Stochastic Processes (4.00)
- ENCS 6181 Optimization Techniques I (4.00)
- ENGR 6131 Linear Systems (4.00)

- ENGR 6301 Advanced Dynamics (4.00)
- ENGR 6311 Vibrations in Machines and Structures (4.00)
- ENGR 6371 Micromechatronic Systems and Applications (4.00)
- MECH 6051 Process Dynamics and Control (4.00)
- MECH 6181 Heating, Air Conditioning and Ventilation (4.00)
- MECH 6301 Vibration Problems in Rotating Machinery (4.00)
- MECH 6311 Noise and Vibration Control (4.00)
- MECH 6441 Stress Analysis in Mechanical Design (4.00)
- MECH 6451 Computer-Aided Mechanical Design (4.00)
- MECH 6471 Aircraft Structures (4.00)
- MECH 6481 Aeroelasticity (4.00)
- MECH 6531 Casting (4.00)
- MECH 6541 Joining Processes and Nondestructive Testing (4.00)
- MECH 6551 Fracture (4.00)
- MECH 6561 High Strength Materials (4.00)
- MECH 6611 Numerically Controlled Machines (4.00)
- MECH 6631 Industrial Automation (4.00)
- MECH 6641 Engineering Fracture Mechanics and Fatigue (4.00)
- MECH 6651 Structural Composites (4.00)
- MECH 6671 Finite Element Method in Machine Design (4.00)
- MECH 6751 Vehicle Dynamics (4.00)
- MECH 6771 Driverless Ground Vehicles (4.00)

The following courses cannot be taken for credit by students who have completed the undergraduate equivalent: INDU 6411, ENCS 6181, ENGR 6131, ENGR 6311, ENGR 6371, MECH 6051, MECH 6181, MECH 6481, MECH 6751, MECH 6771.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
 Program Specific Regulations. An Assessment Grade Point Average (AGPA) of at least 2.70 based on a minimum of 8 credits is required.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation.** To be eligible to graduate, students must have obtained a cumulative grade point average (CGPA) of at least 2.70.

Computer Science PhD

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Computer Science and Software Engineering Courses page for course descriptions.

Computer Science PhD (90 credits)

See the description of the Doctor of/Doctorate in Philosophy (PhD) in the General Requirements for all Programs section.

Software Engineering PhD

Degree Requirements

Please see the Computer Science and Software Engineering Courses page for course descriptions.

Software Engineering PhD (90 credits)

See the description of the Doctor of/Doctorate in Philosophy (PhD) in the General Requirements for all Programs section.

Applied Computer Science MApCompSc

Admission Requirements

- Undergraduate degree in computer science or a graduate diploma in computer science.

Additional Admission Requirements

Admission to the program is competitive and only applicants with high academic standing will be considered. The graduate studies committee, in consultation with the department, is responsible for recommending on all applications for admission.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Computer Science and Software Engineering Courses page for course descriptions and prerequisites.

Applied Computer Science MApCompSc (45 credits)

16 credits chosen from the Applied Computer Science MAPCompSc Core
Note: All Core courses must be successfully completed within the first four terms of the program.

29 credits chosen from Applied Computer Science MAPCompSc Electives

Applied Computer Science MAPCompSc Core (16 credits)

- COMP 6231 Distributed System Design (4.00)
- COMP 6481 Programming and Problem Solving (4.00)
- COMP 6651 Algorithm Design Techniques (4.00)
- SOEN 6441 Advanced Programming Practices (4.00)

Applied Computer Science MAPCompSc Electives (29 credits)

20 credits minimum chosen from the following Topic Areas:
C01 - Developments in Computer Science
C02 - Parallel and Distributed Systems
C03 - Image Processing/Pattern Recognition and Graphics
C04 - Software Systems and Languages
C05 - Information Processing and Management
C06 - Scientific Computation and Algorithms
C07 - Artificial Intelligence and Human-Machine Communication

8 credits maximum chosen from the following computer science courses at the 6000 level:
- COMP 6281 Parallel Programming (4.00)
- COMP 6311 Animation for Computer Games (4.00)
- COMP 6331 Advanced Game Development (4.00)
- COMP 6341 Computer Vision (4.00)
- COMP 6371 Immersive Technologies (4.00)
- COMP 6421 Compiler Design (4.00)
- COMP 6721 Applied Artificial Intelligence (4.00)
- COMP 6731 Pattern Recognition (4.00)
- COMP 6741 Intelligent Systems (4.00)

• COMP 6771 Image Processing (4.00)
• COMP 6791 Information Retrieval and Web Search (4.00)

Remaining credits may chosen from the topic areas and courses listed below:
C08 - Developments in Software Engineering C09 - Software Development
C10 - Software Architecture and Design
C11 - Software Maintenance and Quality
C13 - Software Engineering
C16 - Cognate Disciplines
ENCS 6931
• COMP 6971 Project and Report I (4.00)
• COMP 6981 Project and Report II (4.00)
• COMP 6961 Graduate Seminar in Computer Science (1.00)

Additional Degree Requirements

Co-op Option

The Graduate Co-op Option is a structured Internship program offered through the Institute for Co-operative Education. Students registered in the Master of Applied Computer Science (MApCompSc) program with the Gina Cody School (GCS) are eligible to apply to the Co-op Option. For the general guidelines, please refer to the Institute of Co-operative Education.

Admission Criteria. In addition to the general requirements for entrance into the Institute for Co-operative Education, the GCS has these additional requirements:

- Students apply to the Graduate Co-op Option in the first year of their academic program.
- Students must maintain a cumulative GPA of 3.00 or better throughout their studies.
- This academic program may have a higher GPA requirement and/or additional admission requirements.
- Registration for ENCS 6921 must be approved by the Department Co-op Program Academic Director or Graduate Program Director.

Academic Regulations

Programming Competency: The programming competency of students is assessed on the basis of computer-based tests, administered in the core course COMP 6481.

Program of Study. The student, in consultation with faculty, must plan an individual program of study approved by the department graduate studies committee.

Credits. Additional credits may be required in some cases.

Completion. Normally a full-time student will require six terms to complete the degree requirements.

Transfer Credits. A student may be granted credit for, in general, not more than 12 credits taken in approved graduate studies prior to his or her entry into this program. A course submitted for transfer credit must be appropriate to the student's program of study at Concordia University. An application for such credit will be considered only at the time of admission.

Cross-Registration. A student in the program wishing to take courses under the cross-registration scheme outlined in the graduate calendar must first obtain permission of the graduate program director.

Time Limit. Please refer to the Academic Regulations page for further details regarding the Time Limits.

Projects. Students may choose to do a project as part of their program. They do so by registering for COMP 6971. Students may also choose to extend their project work from COMP 6971 by registering for COMP 6981.

Computer Science MCompSc

Admission Requirements

- Bachelor's degree in computer science or other disciplines such as engineering, sciences, and mathematics with very high standing.

Additional Admission Requirements

Qualified applicants requiring prerequisite courses may be required to take such courses in addition to their regular graduate program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Computer Science and Software Engineering Courses page for course descriptions and prerequisites.

Computer Science MCompSc (45 credits)

16	credits of courses with a minimum of 8 credits chosen from the following Topic Areas: C01 - Developments in Computer Science C02 - Parallel and Distributed Systems C03 - Image Processing/Pattern Recognition and Graphics C04 - Software Systems and Languages C05 - Information Processing and Management C06 - Scientific Computation and Algorithms C07 - Artificial Intelligence and Human-Machine Communication Any remaining credits may be chosen from the following Topic Areas: C08 - Developments in Software Engineering C09 - Software Development C10 - Software Architecture and Design C11 - Software Maintenance and Quality C12 - Software Development Processes and Management C13 - Software Engineering C16 - Cognate Disciplines or from: • COMP 6961 Graduate Seminar in Computer Science (1.00)
29	credits: • COMP 7941 Master's Research and Thesis (29.00)

Academic Regulations

Program of Study. Each individual program of study must be approved by the supervisor(s) and either the Graduate Program Director or the Department Chair.

Completion. Normally a full-time student will require six terms to complete the degree requirements.

Transfer Credits. Students may be granted transfer credits for, in general, not more than 8 credits taken in approved graduate studies prior to their entry in this program. A course submitted for transfer credit must be appropriate to the student's program of study at Concordia University. An application for such credit will be considered only at the time of admission.

Cross-Registration. A student in the program wishing to take courses under the cross-registration scheme outlined in the graduate calendar must first obtain permission of the graduate program director.

Time Limit. Please refer to the Academic Regulations page for further details regarding the Time Limits.

Software Engineering MASc

Admission Requirements

- Undergraduate degree or graduate diploma in software engineering, computer science, or another discipline such as engineering, science, and mathematics with very high standing.

Additional Admission Requirements

Qualified applicants requiring prerequisite courses may be required to take such courses in addition to their regular graduate program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Computer Science and Software Engineering Courses page for course descriptions and prerequisites.

Software Engineering MASc (45 credits)

16 credits of coursework with a minimum of 8 credits chosen from the following Topic Areas:
C08 - Developments in Software Engineering
C09 - Software Development
C10 - Software Architecture and Design
C11 - Software Maintenance and Quality
C12 - Software Development Processes and Management
C12 - Software Development Processes and Management
C13 - Software Engineering
Any remaining credits may be chosen from any of the following Topic Areas:
C01 - Developments in Computer Science
C02 - Parallel and Distributed Systems
C03 - Image Processing/Pattern Recognition and Graphics C04 - Software Systems and Languages
C05 - Information Processing and Management
C06 - Scientific Computation and Algorithms
C07 - Artificial Intelligence and Human-Machine Communication
C16 - Cognate Disciplines
A maximum of 4 credits can be chosen from the following courses: COMP 6281, COMP 6311, COMP 6331, COMP 6341, COMP 6371, COMP 6731, COMP 6771, COMP 6421, COMP 6741, COMP 6791. The student's study program must be approved by the supervisor(s) and either the Graduate Program Director or the Department Chai

29 credits:
• SOEN 7941 Master's Research and Thesis (29.00)

Academic Regulations

Program of Study. Each individual program of study must be approved by the Department.

Completion. Normally a full-time student will require six terms to complete the degree requirements.

Transfer Credits. Students may be granted transfer credits for, in general, not more than 8 credits taken in approved graduate studies prior to their entry in this program. A course submitted for transfer credit must be appropriate to the student's program of study at Concordia University. An application for such credit will be considered only at the time of admission.

Cross-Registration. A student in the program wishing to take courses under the cross-registration scheme outlined in the graduate calendar must first obtain permission of the graduate program director.

Time Limit. Please refer to the Academic Regulations page for further details regarding the Time Limits. The Department does not recommend students to register for this program on a part-time basis.

Software Engineering MEng

Admission Requirements

- Undergraduate degree or a graduate diploma in Software Engineering with very high standing. Applicants holding an undergraduate degree with very high standing in another discipline such as engineering, science, computer science or mathematics must have at least two years of experience in IT or related industry.

Additional Admission Requirements

Qualified applicants requiring prerequisite courses may be required to take such courses in addition to their regular graduate program. Admission to the program is competitive and only applicants with high academic standing will be considered. The graduate studies committee, in consultation with the department, is responsible for recommending on all applications for admission.

Note. Students who have not completed an undergraduate degree or a graduate diploma in Software Engineering must take COMP 5541, SOEN 341 and SOEN 390 in addition to the other requirements for the program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Computer Science and Software Engineering Courses page for course descriptions.

Software Engineering MEng (45 credits)

16	credits chosen from the Software Engineering MEng Core Note: All core courses must be successfully completed within the first four terms of the program.
29	credits chosen from the Software Engineering MEng Electives list

Software Engineering MEng Core (16 credits)

- COMP 6481 Programming and Problem Solving (4.00)
- SOEN 6431 Software Comprehension and Maintenance (4.00)
- SOEN 6441 Advanced Programming Practices (4.00)
- SOEN 6461 Software Design Methodologies (4.00)

Software Engineering MEng Electives (29 credits)

20	credits minimum chosen from the following Topic Areas: C08 - Developments in Software Engineering C09 - Software Development C10 - Software Architecture and Design C11 - Software Maintenance and Quality C12 - Software Development Processes and Management C13 - Software Engineering
	Remaining credits may be chosen from the topic areas and courses listed below: C01 - Developments in Computer Science C02 - Parallel and Distributed Systems C03 - Image Processing/Pattern Recognition and Graphics C04 - Software Systems and Languages

C06 - Scientific Computation and Algorithms
C07 - Artificial Intelligence and Human-Machine Communication C08 - Developments in Software Engineering
C09 - Software Development
C10 - Software Architecture and Design
C11 - Software Maintenance and Quality
C12 - Software Development Processes and Management
C13 - Software Engineering
C16 - Cognate Disciplines

- SOEN 6971 Project and Report I (4.00)ENCS 6931
- COMP 6961 Graduate Seminar in Computer Science (1.00)

Academic Regulations

Programming Competency: The programming competency of students is assessed on the basis of computer-based tests, administered in the core course COMP 6481.

Program of Study. The student, in consultation with faculty, must plan an individual program of study approved by the department graduate studies committee.

Credits. Additional credits may be required in some cases.

Completion. Normally a full-time student will require six terms to complete the degree requirements.

Transfer Credits. A student may be granted credit for, in general, not more than 12 credits taken in approved graduate studies prior to his or her entry into this program. A course submitted for transfer credit must be appropriate to the student's program of study at Concordia University. An application for such credit will be considered only at the time of admission.

Cross-Registration. A student in the program wishing to take courses under the cross-registration scheme outlined in the graduate calendar must first obtain permission of the graduate program director.

Time Limit. Please refer to the Academic Regulations page for further details regarding the Time Limits.

Projects. Students may choose to do a project as part of their program. They do so by registering for SOEN 6971. Students may also choose to extend their project work from SOEN 6971 by registering for SOEN 6981.

Computer Science Graduate Diploma

Program

The Department of Computer Science and Software Engineering offers a Diploma program for qualified university graduates from diverse backgrounds who wish to obtain expertise in computer science fundamentals. Graduates of the Diploma program will obtain qualifications similar to those of graduates of the Bachelor of/Baccalaureate in Computer Science program. Upon completion of the Diploma, those with superior academic records who wish to pursue their studies may apply for admission to a 45 credit Master's program in Computer Science.

Admission Requirements

- Bachelor's degree with above-average standing.
- Completion of COMP 248 Object-Oriented Programming I or equivalent courses in an object-oriented language such as C++ or Java prior to entry into the Diploma program. Equivalence will be determined by the Diploma Program Director.

Additional Admission Requirements

Applicants deficient in mathematics or English are required to make up their deficiencies before they can be considered for admission. The Gina Cody School reserves the right to set a quota on the number of admissions to the program.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 31 credits.

Please see the Computer Science and Software Engineering Courses page for course descriptions.

Computer Science Graduate Diploma (31 credits)

31 credits of Required Courses
- COMP 5201 Computer Organization and Assembly Language (4.00)
- COMP 5361 Discrete Structures and Formal Languages (4.00)
- COMP 5421 Advanced Programming (4.00)
- COMP 5511 Principles of Data Structures (4.00)
- COMP 5461 Operating Systems (4.00)
- COMP 5531 Files and Databases (4.00)
- COMP 5541 Tools and Techniques for Software Engineering (4.00)
- ENCS 6721 Technical Writing and Research Methods for Scientists and Engineers (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
 Program Specific Regulations. An Assessment Grade Point Average (AGPA) of at least 2.70 based on a minimum of 8 credits is required.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation.** To be eligible to graduate, students must have completed course requirements with a CGPA of at least 2.70.

John Molson School of Business Programs

Doctor/Doctorate

- Business Administration PhD

Master/Magisteriate

- Executive MBA (EMBA)
- Investment Management Option (GIIM) MBA
- Investment Management MIM
- Master of Business Administration (MBA)
- **Master of Science (MSc)**
 - MSc
 - Finance MSc
 - Management MSc
 - Marketing MSc
 - Business Analytics and Technology Management (BATM) MSc
- Supply Chain Management MSCM

Graduate Diploma

- Business Administration Graduate Diploma
- Chartered Professional Accountancy Graduate Diploma
- Investment Management (DIM) Diploma

Graduate Certificate

- Business Administration Graduate Certificate
- Entrepreneurship Graduate Certificate
- Quantitative Business Studies Graduate Certificate

JMSB Co-operative Programs

Business Administration PhD

Admission Requirements

- Master's degree in business administration or equivalent with high academic standing, from a recognized university.
- Applicants with a Master's degree in a field related to the proposed area of research may be admitted subject to satisfactory completion of qualifying requirements, if necessary, by taking up to five prerequisite courses in addition to the required coursework in the graduate program. The specific courses to be taken are determined by the Program Director depending on the student's background and area of specialization.
- Applicants must submit proof of satisfactory performance on the Graduate Management Admissions Test (GMAT) or the Graduate Record Examination (GRE)within the previous five years.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Students are accepted only for full-time study.

Fast-Track to PhD in Business Administration: Students enrolled in a John Molson School of Business Master of Science program and who have completed all program requirements except for the thesis may apply for permission to proceed directly to doctoral studies in the same discipline without submitting a master's thesis. In all such cases, the decision of the PhD Admissions Committee shall be final.

Area of specialization: Applicants must select their area of specialization from the departments of Accountancy, Finance, Management, Marketing or Supply Chain and Business Technology Management, at the time of application. Enrolment in the program is strictly limited and applicants are selected on the basis of past academic record, letters of recommendation and the relevance of their proposed research to the areas of specialization of the department concerned.

Requests to transfer to another specialization are treated within the normal application process in the new area of specialization.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Business Administration PhD Courses for course descriptions.

The program consists of three consecutive phases: the Qualifying Phase, the Course Phase, and the Thesis Phase.

Qualifying Phase

Given their academic background, some students may be required to take up to five 3-credit courses, usually at the MBA, or MSc level before qualifying for the program. The minimum number of credits will be determined upon acceptance to the program and is formally communicated to the student by the PhD Office before entry in the program.

Course Phase and Thesis Phase

The minimum course requirement of this phase is 30 credits, corresponding to a minimum of 27 credits for courses and 3 credits for the Comprehensive Examination, as outlined below.

Business Administration PhD (90 credits)

30	credits: Course Phase

60 credits: Thesis Phase

Course Phase (30 credits)

6 credits of Required General Courses:
These courses are required for all PhD Business Administration students:

- ADMI 871 Foundations of Business Research (3.00)
- ADMI 880 Pedagogical Methods (3.00)

12 credits of Required Specialization Courses chosen from the following:
Accountancy Specialization: Business Administration PhD
Finance Specialization: Business Administration PhD
Management Specialization: Business Administration PhD
Marketing Specialization: Business Administration PhD
Supply Chain and Business Technology Management (SCBTM) Specialization: Business Administration PhD

9 credits of Business Administration PhD Elective Courses
Students may choose from scheduled graduate courses offered by their Department, another Department or Faculty at Concordia University, or by a University affiliated through the Joint Program. The course selection depends on the candidates research interests and background, subject to Faculty approval. A limit of 6 credits may be taken from MSc level courses with prior approval of the Graduate Program Director

3 credits Comprehensive Examinations:

- ADMI 8890 Comprehensive Examination (3.00)

0 credits Professional Development:

- ADMI 872 Doctoral Professional Development (0.00)

Thesis Phase (60 credits)

60 credits:

- ADMI 8902 Thesis Proposal (0.00)
- ADMI 890 Thesis (60.00)

Accountancy Specialization: Business Administration PhD (12 credits)

12 credits of Required Accountancy Specialization Courses:
ADMI 860 ADMI 861 ADMI 8601 ADMI 8602

Business Administration PhD Elective Courses (9 credits)

9 credits of elective courses chosen from the following:

- ADMI 873 Teaching and Learning with the Case Method (3.00)
- ADMI 8502 Advanced Topics in Management (3.00)

Students may also choose from courses offered by their Department, another Department or Faculty at Concordia University, or by a University affiliated through the Joint Program. The course selection depends on the candidates research interests and background, subject to Faculty approval. A limit of 6 credits may be taken from MSc level courses with prior approval of the

Graduate Program Director.

Finance Specialization: Business Administration PhD (12 credits)

12 credits of Finance Specialization Courses:

- ADMI 840 Corporate Finance (3.00) ADMI 8401 ADMI 8402 ADMI 8403

Management Specialization: Business Administration PhD (12 credits)

12 credits of Required Management Specialization Courses:

- ADMI 812 Foundations and Current Topics in Organizational Behaviour (3.00) ADMI 8501
- ADMI 852 Debating Strategic Management (3.00)
- ADMI 870 Research Methods in Management: Core and Advanced Issues in Quantitative Studies (3.00)

Marketing Specialization: Business Administration PhD (12 credits)

12 credits of Required Marketing Specialization Courses:
ADMI 8301 ADMI 8302 ADMI 8303 ADMI 8304

Supply Chain and Business Technology Management (SCBTM) Specialization: Business Administration PhD (12 credits)

12 credits of Required Supply Chain and Business Technology Management Specialization Courses:

- ADMI 821 Artificial Intelligence for Business: Methods and Applications (3.00) ADMI 8201 ADMI 8202 ADMI 8203

Additional Degree Requirements

- **Credit Load.** The normal course load for PhD students during the Qualifying and the Course Phase is between 12 to 18 credits for each academic year. In exceptional circumstances, a student in good standing may be granted permission to reduce their credit load.

Academic Regulations

1. **Academic Standing**. Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 3.00.

Executive MBA (EMBA)

Additional Admission Requirements

Intensive workshops in Mathematics and Accountancy are offered prior to the start of the program to registered students who would need to refresh their competence.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 46 credits.

Please see the Executive MBA Courses for course descriptions.

Executive MBA (EMBA) (46 credits)

37.5 credits of Core Courses:

- EMBA 610 Measuring and Reporting Financial Performance (3.00)
- EMBA 611 Managing Talent (3.00)
- EMBA 612 Marketing Management (3.00)
- EMBA 613 Capital Markets and Financial Management (3.00)
- EMBA 620 Value Creation through Business Processes (3.00)
- EMBA 621 Information Technology and Digital Strategy (3.00)
- EMBA 622 Business, Government and the Economy (1.50)
- EMBA 623 Managing in a Global Environment (3.00)
- EMBA 630 Financial Decisions Under Uncertainty (3.00)
- EMBA 631 Strategic Management Accounting (3.00)
- EMBA 632 Creativity and Innovation (1.50)
- EMBA 640 Leadership (3.00)
- EMBA 641 Corporate Governance (1.50)
- EMBA 642 Crafting and Implementing a Winning Strategy (3.00)

8.5 credits of Integrative Courses:

- EMBA 615 Live Case Experience (1.00)
- EMBA 625 Business Opportunities and Cultural Immersion (1.00)
- EMBA 635 EMBA (3.00)
- EMBA 646 Applied Field Project (3.50)

Additional Degree Requirements

Co-curricular Modules

Executive Coaching. The Executive Coaching module is structured to focus on a student's need for leadership and professional development.

The Healthy Executive. The Healthy Executive module is an integrated set of lectures and activities in health, nutrition, and exercise aimed at enabling students to better manage the executive lifestyle.

JMSB Executives Connect Series. The JMSB Executives Connect Series aims to expose students to leaders and experts who are shaping the business world today.

Mandatory Statistics Module. Candidates must demonstrate competency in statistics by successfully completing the mandatory online Statistics Module and test before the end of the first term. The module and the test cover basic business statistics concepts such as

descriptive and inferential statistics, sampling, and variable categorization. In the event that students do not successfully complete the test in the first term, they will be provided with tutoring by the EMBA program and be permitted to take the test again.

Academic Regulations

1. **Transfer Credits.** Because of the integral structure of the EMBA Program, neither transfer credits nor course exemptions will be granted.
2. **Attendance.** Students are expected to attend all classes. An occasional absence will be permitted, but beyond that a student will be warned and then placed on probationary standing.
3. **Co-curricular Modules.** Students are expected to participate in a series of three co-curriculur modules throughout the course of the program; these are Executive Coaching, The Healthy Executive, and the JMSB Executives Connect Series.
4. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
5. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
6. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of 2.70.

Investment Management Option (GIIM) MBA

Admission Requirements

- Bachelor's degree, with high academic standing, or qualifications accepted as equivalent by the School of Graduate Studies and acceptance into the CFA® program are necessary for admission.
- Applicants are evaluated according to the following criteria: undergraduate performance, Graduate Management Admission Test (GMAT) scores, work experience, detailed evaluations from employers and former university instructors, and statements of self-assessment. Students without formal undergraduate training in quantitative methods, accounting, economics, and finance will be required to demonstrate adequate preparation.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

GMAT requirements for GIIM applicants who have already passed CFA Level I examinations will be waived.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 57 credits and pass Level I of the CFA® exams.

Please see the Investment Management Courses (Graduate Diploma, MBA and MIM) page for course descriptions.

Investment Management Option (GIIM) MBA (57 credits)

57 credits of Required Courses:

- GIIM 610 Economics (3.00)
- GIIM 611 Financial Statement Analysis I (3.00)
- GIIM 613 Asset Pricing and Portfolio Management I (1.50)
- GIIM 614 Security Valuation in the Domestic and International Environment (3.00)
- GIIM 615 CFA® Exam Preparation Course Level I (1.50)
- GIIM 616 Quantitative Techniques (3.00)
- GIIM 617 Corporate Finance (1.50)
- GIIM 618 Seminar in Corporate Finance (3.00)
- GIIM 619 Marketing Management (3.00)
- GIIM 620 Financial Statement Analysis II (3.00)
- GIIM 621 Fixed Income Analysis (1.50)
- GIIM 622 Derivatives (3.00)
- GIIM 623 Asset Pricing and Portfolio Management II (1.50)
- GIIM 624 Analysis of Equity Investments (3.00)
- GIIM 626 Organizational Behaviour (3.00)
- GIIM 631 Asset Allocation and Performance Measurement (3.00)
- GIIM 633 Investment Law and Ethics (3.00)
- GIIM 636 Alternative Investments (1.50)
- GIIM 637 Strategic Management (3.00)
- GIIM 653 Seminar in Investment Analysis and Management (3.00)
- GIIM 654 Seminar in International Investment Analysis and Management (3.00)
- GIIM 655 Socially Responsible and Sustainable Investment (3.00)

3 credits:

- GIIM 695 Special Topics in Investment Management (3.00)

6	credits of Special Topics in Investment Management: • GIIM 696 Soft Skills for Tomorrow's Financial Professional (6.00) • GIIM 697 Applied Investment Management (6.00)
0	credits of Non-credit Electives: • GIIM 625 CFA® Exam Preparation Course Level II (0.00) • GIIM 634 CFA® Exam Preparation Course Level III (0.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement for the master’s degree is 3 terms (one year) of full-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students in the GIIM MBA program must have a cumulative GPA of 2.70 and must successfully complete Level I of the CFA® examinations.

Investment Management MIM

Admission Requirements

- Bachelor's degree, with high academic standing, or qualifications accepted as equivalent by the School of Graduate Studies and acceptance into the CFA® program are necessary for admission.
- Applicants are evaluated according to the following criteria: undergraduate performance, Graduate Management Admission Test (GMAT) scores, work experience, detailed evaluations from employers and former university instructors, and statements of self-assessment. Students without formal undergraduate training in quantitative methods, accounting, economics, and finance will be required to demonstrate adequate preparation.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

GMAT requirements for GIIM applicants who have already passed CFA Level I examinations will be waived.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits and pass Level I of the CFA® exams.

Please see the Investment Management MIM Courses page for course descriptions.

Investment Management (MIM) (45 credits)

45 credits of Required Courses

- GIIM 610 Economics (3.00)
- GIIM 611 Financial Statement Analysis I (3.00)
- GIIM 613 Asset Pricing and Portfolio Management I (1.50)
- GIIM 614 Security Valuation in the Domestic and International Environment (3.00)
- GIIM 615 CFA® Exam Preparation Course Level I (1.50)
- GIIM 616 Quantitative Techniques (3.00)
- GIIM 617 Corporate Finance (1.50)
- GIIM 618 Seminar in Corporate Finance (3.00)
- GIIM 620 Financial Statement Analysis II (3.00)
- GIIM 621 Fixed Income Analysis (1.50)
- GIIM 622 Derivatives (3.00)
- GIIM 623 Asset Pricing and Portfolio Management II (1.50)
- GIIM 624 Analysis of Equity Investments (3.00)
- GIIM 631 Asset Allocation and Performance Measurement (3.00)
- GIIM 633 Investment Law and Ethics (3.00)
- GIIM 636 Alternative Investments (1.50)
- GIIM 653 Seminar in Investment Analysis and Management (3.00)
- GIIM 654 Seminar in International Investment Analysis and Management (3.00)

0 credits of Non-credit Electives

- GIIM 625 CFA® Exam Preparation Course Level II (0.00)
- GIIM 634 CFA® Exam Preparation Course Level III (0.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic

Regulations.

2. **Residence.** The minimum residence requirement for the master's degree is 3 terms (one year) of full-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students in the MIM MBA program must have a cumulative GPA of 2.70 and must successfully complete Level I of the CFA® examinations.

Master of Business Administration (MBA)

Admission Requirements

- Bachelor's degree in high standing, or qualifications accepted as equivalent by the School of Graduate Studies.
- Minimum of two years of relevant full-time work experience.
- Applicants are evaluated according to the following six criteria: undergraduate grades; Graduate Management Admission Test (GMAT) score; work experience; detailed evaluations from employers and former university instructors; an interview and a letter of intent.
- **Proficiency in English or French.** Applicants whose first language is not English or French, and who are not Canadian citizens or landed immigrants, must achieve a satisfactory performance in the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) before being considered for admission.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the MBA Courses page for course descriptions.

Master of Business Administration (MBA) (45 credits)

30 credits of Core Courses
- MBA 640 On Ramp (0.00)
- MBA 641 Responsible Manager (3.00)
- MBA 642 Financial Reporting for Responsible Decision Making (3.00)
- MBA 643 Managerial Analytics (3.00)
- MBA 644 Marketing Management (3.00)
- MBA 645 Economics for Organizational Decision Making (3.00)
- MBA 646 Financial Management (3.00)
- MBA 647 Managing People in Organizations (3.00)
- MBA 648 Business Process Management (3.00)
- MBA 649 Strategic Managerial Accounting and Control (3.00)
- MBA 650 Crafting and Implementing Successful Strategies (3.00)

15 credits of Non-core Courses chosen from the following lists:

MBA Electives
MBA Electives: Accountancy
MBA Electives: Supply Chain and Business Technology Management
MBA Electives: Finance
MBA Electives: Management
MBA Electives: Marketing

In addition to the elective courses listed below, MBA students may also take courses in the JMSB MSc programs, or graduate courses offered outside the John Molson School of Business, subject to approval by the MBA Program Director.

MBA Electives

- MBA 651 MBA Research Paper (6.00)
- MBA 654 MBA Reading Course (3.00)
- MBA 655 International Case Competition Organizer (6.00)
- MBA 656 MBA Case Competition Organizing Committee (3.00)
- MBA 657 International Case Competition – Executive Assistant (3.00)

- MBA 658 Van Berkom Case Competition - Executive Assistant (3.00)
- MBA 659 Strategies in Action (Case competition) (3.00)
- MBA 660 Small Business Consulting Bureau (3.00)
- MBA 661 Community Services Initiative (3.00)
- MBA 662 Surgical Innovation II (3.00)
- MBA 663 District 3 Startup Consulting (0.00)
- MBA 695 Seminar in Special Topics (3.00)

MBA Electives: Accountancy

- ACCO 691 Business Valuations (3.00)
- ACCO 692 Managing After-Tax Returns (3.00)
- ACCO 695 Seminar in Special Topics (3.00)

MBA Electives: Supply Chain and Business Technology Management

- BSTA 645 Statistic Software for Data Management and Analysis (3.00)
- BSTA 677 Business Forecasting (3.00)
- BSTA 678 Data Mining Techniques (3.00)
- BSTA 679 Statistical Models for Data Analysis (3.00)
- BSTA 695 Seminar in Special Topics (3.00)
- BTM 633 Strategic Management of Information Technology (3.00)
- BTM 660 Project Management (3.00)
- BTM 695 Seminar in Special Topics (3.00)
- SCOM 610 Supply Chain Management (3.00)
- SCOM 695 695 Seminar in Special Topics (3.00)

MBA Electives: Finance

- FINA 663 Corporate Finance (3.00)
- FINA 664 Private Equity (3.00)
- FINA 665 Merger and Acquisition (3.00)
- FINA 682 International Financial Management3 (3.00)
- FINA 683 Portfolio Management (3.00)
- FINA 685 Options and Futures (3.00)
- FINA 688 Financial Risk Management (3.00)
- FINA 690 Investment Analysis (3.00)
- FINA 691 Real Estate Finance (3.00)
- FINA 695 Seminar in Special Topics (3.00)

MBA Electives: Management

- MANA 667 Corporate Governance (3.00)
- MANA 668 Sustainable Business Strategy (3.00)
- MANA 670 Management Consulting (3.00)
- MANA 681 Global Competition and International Strategy (3.00)
- MANA 682 Human Resources Management (3.00)
- MANA 683 Entrepreneurship and Small Business (3.00)
- MANA 684 Entrepreneurship through Acquisition (3.00)
- MANA 690 LIVE Case Experience (3.00)

- MANA 695 Seminar in Special Topics (3.00)

MBA Electives: Marketing

- MARK 671 Consumer Behaviour (3.00)
- MARK 672 Strategic Marketing (3.00)
- MARK 673 Social Media Marketing (3.00)
- MARK 674 Integrated Marketing Communications (3.00)
- MARK 691 Pharmaceutical Marketing (3.00)
- MARK 695 Seminar in Special Topics (3.00)

Additional Degree Requirements

To earn an MBA degree from Concordia University, a student in the regular MBA program must normally complete 45 credits in addition to any required qualifying courses. This requirement will be reduced only in cases where transfer credits are granted.

Residence Requirement. The residence requirement for the MBA is normally three terms of full-time study, or the equivalent in part-time study. This requirement may be reduced to two terms of full-time study or the equivalent in part-time study for students admitted with transfer credits.

Course Substitution. Students may be exempted from certain courses on the basis of course work completed prior to entry into the program. However, such courses must be replaced by other MBA courses, or, subject to approval, by MSc (Administration) courses or graduate courses taken outside the John Molson School of Business. While students admitted with course substitutions are not required to take all of the courses specified in the program, every student must meet the degree requirement of 45 credits. Details of policies and practices related to course substitution may be obtained from the Assistant Director, MBA Program.

MBA Option for Diploma in Chartered Professional Accountancy Students

Students in good academic standing who meet the admission requirements of the MBA Program, and who have completed the requirements for the Diploma in Chartered Accountancy Program within the last five years, may be granted advanced standing for up to 20 credits upon admission to the MBA Program.

The MBA Co-operative Option

The MBA Co-operative Option is non-credit and is offered to all students who are enrolled in the John Molson MBA Program. Students accepted into the Co-op must have completed 24 credits, and maintain a cumulative GPA of 3.30 or better.

Students complete one work term (four months). Students are not permitted to complete a co-op work term in the last term of their program of study. They must return after their co- op for a minimum of one term of course work.

Academic Regulations

1. **Course Load for Full-time Students.** The course load for a full-time student is a minimum of 12 credits of course work per term. Students can accelerate their progress by taking courses in the Summer term.
2. **Course Load for Part-time Students.** The normal course load for a part-time student is a minimum of 12 credits per calendar year. A part-time student may not, without permission, register for more than 6 credits in each of the Fall and Winter terms, but may accelerate their progress in the program by taking courses in the Summer term.
3. **Change of Status.** Students may be granted permission to change their status from part-time to full-time or vice-versa. If a change is permitted, the student's program time limit will be adjusted accordingly.
4. **Course Load Reduction.** In exceptional circumstances, students may be granted permission to reduce their course load below the normal specified in paragraphs 1 and 2 above, while remaining in good standing. Full-time students completing less than 9 credits per term will be reclassified as part-time, and must comply with the course load requirements for part-time students, specified in paragraph 2 above. Part-time students with a reduced course load must complete a minimum of 9 credits per year, including the Summer term. Full- and part-time students who have been granted such permission will be subject to specific conditions, as outlined

in the section on Academic Standing.

5. **Program and Course Withdrawal.** Students who wish to apply for withdrawal from the MBA program must do so in writing at the MBA Program office. Students may drop a course up to the end of the course change period. (This is normally about two weeks after classes begin – see Academic Calendar.) Application to drop a course must be made in writing at the MBA Program office. Students should bear in mind the minimum and maximum course load regulations specified above, when dropping or adding courses.
6. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
7. **Business Communication Skills.** All students in the MBA Program must demonstrate a high level of competence in written and oral communications. A strong managerial communications component has been designed into a number of MBA courses to help students evaluate and develop their skills in this area. Students who exhibit deficiencies in communication skills will be expected to obtain appropriate assistance through designated courses, workshops or individual tutorial support.
8. **Cognate Courses.** Subject to the approval of the MBA Program Director and the departments concerned, MBA students are permitted to choose courses from those offered by other programs within the John Molson School of Business or from courses offered by other Faculties. A maximum of 12 credits can be selected from courses outside the John Molson School of Business.
9. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of 2.70 or better.

MSc

- MSc in Finance
- Management MSc
- Marketing MSc
- MSc Administration, Decision Sciences and Management Information Systems Option (DS/MIS)

Admission Requirements

- Bachelor's degree with high academic standing serves as a prerequisite for the program. To be eligible for admission, applicants must have maintained at least a *B* average in their final two years and have obtained a Grade Point Average (GPA) of at least 3.00 on a 4.30 scale, or the equivalent, from an accredited university.
- Applicants must submit proof of satisfactory performance on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) completed within the previous five years, three letters of recommendation with the Academic Assessment forms, and a short statement of purpose. (Please note that the GMAT is preferred to the GRE).
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.
- **Concordia Comprehensive ESL Placement Test (ConCEPT).** Applicants who have been admitted by a program and whose test results fall within the range requiring a language placement test are required to write the Concordia Comprehensive ESL Placement Test (ConCEPT).

Additional Admission Requirements

The program is open to both full-time and part-time students.

Applicants with a bachelor's degree in other than Commerce or Business Administration will be required to take prerequisite courses in addition to the required coursework in the graduate program. The specific courses to be taken are determined by the Department MSc Advisor with the approval of the Associate Dean, Research and Research Programs depending upon the student's background and area of specialization.

Fast-Track to PhD in Business Administration

Meritorious students enrolled in a JMSB Master of Science program who have completed all degree requirements except for the thesis may apply for permission to proceed directly to doctoral studies in the same discipline without submitting a master's thesis. In all such cases, the decision of the PhD Admissions Committee shall be final.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** In accordance with standard university policy, the minimum residence requirement for this master’s degree is three terms of full-time study, or the equivalent in part-time study. This requirement must be met regardless of the amount of graduate work previously completed in any other program or at any other university.
3. **Time Limit.** Please refer to the Academic Regulation page for further details regarding the Time Limit requirements.
4. **Credit Load: Full-time Students.** The normal course load for full-time students is 12 credits in each of the terms in the first year and the 21-credit thesis in the second year.
5. **Credit Load: Part-time Students.** The maximum course load for part-time students is 9 credits per calendar year. The 21-credit thesis

should take one year to 18 months to complete.

6. **Course Reduction.** In exceptional circumstances, students may be granted permission to reduce their course load below the normal specified above while remaining in good standing.
7. **Program and Course Withdrawal.** Students who wish to apply for withdrawal from an MSc program must do so in writing at the office of the Associate Dean, Research and Research Programs. Students may drop a course up to the end of the course change period. This is normally about two weeks after classes begin (see Academic Calendar). In addition to the regulations which appear in the Graduate Registration section of the Graduate Calendar, students enrolled in an MSc program will be required to observe the following rules.
8. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

Finance MSc

Admission Requirements

- Bachelor's degree with high academic standing serves as a prerequisite for the program. To be eligible for admission, applicants must have maintained at least a *B* average in their final two years and have obtained a Grade Point Average (GPA) of at least 3.00 on a 4.30 scale, or the equivalent, from an accredited university.
- Applicants must submit proof of satisfactory performance on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) completed within the previous five years, three letters of recommendation with the Academic Assessment forms, and a short statement of purpose. (Please note that the GMAT is preferred to the GRE).
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Concordia Comprehensive ESL Placement Test (ConCEPT). Applicants who have been admitted by a program and whose test results fall within the range requiring a language placement test are required to write the Concordia Comprehensive ESL Placement Test (ConCEPT).

The program is open to both full-time and part-time students.

Applicants with a bachelor's degree in other than Commerce or Business Administration will be required to take prerequisite courses in addition to the required coursework in the graduate program. The specific courses to be taken are determined by the Department MSc Advisor with the approval of the Associate Dean, Research and Research Programs depending upon the student's background and area of specialization.

Fast-Track to PhD in Business Administration

Meritorious students enrolled in a JMSB Master of Science program who have completed all degree requirements except for the thesis may apply for permission to proceed directly to doctoral studies in the same discipline without submitting a master's thesis. In all such cases, the decision of the PhD Admissions Committee shall be final.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

In the first year of the program, candidates are required to complete a minimum of 24 credits.

Please see the MSc Finance, Management, Marketing, and Administration, Decision Sciences and Management Information Systems (MSCA) Courses section for course descriptions.

Finance MSc (45 credits)

9 credits of Required Courses:
- MSCA 601 Financial Economics (3.00)
- MSCA 602 Applied Linear Statistical Models (3.00)
- MSCA 611 Research Methodology - Finance (3.00)

15 credits of MSc Finance Seminars.
Upon approval of the Department MSc Finance Advisor and the instructor, up to six credits of electives may include the following:
- Seminars in any other JMSB MSc program;
- PhD Seminars in Finance;
- Cognate graduate seminars offered by other departments within the university.

21 credits:

- MSCA 699 Research Thesis (21.00)

MSc Finance Seminars

Each year a selection of specialized seminars will be offered on a rotating basis from those listed below:

- MSCA 621 Seminar in Investment Theory (3.00)**Note:** Changes in topic will be indicated by changes to the title in the course
- MSCA 622 Seminar in Investment Management (3.00)schedule.
- MSCA 623 Seminar in Financial Theory and Corporate Policy (3.00)
- MSCA 624 Seminar in Mergers, Restructuring, and Corporate Control (3.00)
- MSCA 625 Seminar in Options and Futures (3.00)
- MSCA 632 Seminar in Special Topics in Finance (3.00)

Academic Regulations

Academic Standing. Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.

Residence. The minimum residence requirement for this master's degree is three terms of full-time study, or the equivalent in part-time study.

Time Limit. Please refer to the Academic Regulations page for further details regarding the Time Limits.

Graduation Requirement. In order to graduate, students must have a cumulative GPA of at least 2.70.

Management MSc

Admission Requirements

- Bachelor's degree with high academic standing serves as a prerequisite for the program. To be eligible for admission, applicants must have maintained at least a B average in their final two years and have obtained a Grade Point Average (GPA) of at least 3.00 on a 4.30 scale, or the equivalent, from an accredited university.
- Applicants with insufficient prior training in their expected area of specialization may be required to take prerequisite courses in addition to the required coursework in the graduate program. The specific courses to be taken are determined by the Graduate Program Director depending upon the student's background and area of specialization.
- Applicants must submit proof of satisfactory performance on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) completed within the previous five years, three letters of recommendation with the Academic Assessment forms, and a short statement of purpose. (Please note that the GMAT is preferred to the GRE).
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

The program is open to both full-time and part-time students.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits

In the first year of the program, candidates are strongly encouraged to complete a minimum of 24 credits and MSCA 655.

Please see the Finance, Management, Marketing, and Administration MSc (MSCA) Courses section for course descriptions.

Management MSc (45 credits)

15 credits of Core Courses:
- MSCA 603 Applied Data Analysis (3.00)
- MSCA 616 Research Methodology - Management (3.00)
- MSCA 654 Consulting (3.00)
- MSCA 655 Professional Development (0.00)
- MSCA 656 Individual and Group Behaviour in Organizations (3.00)
- MSCA 657 Organizations and Strategy (3.00)

9 credits of Elective Management MSc Seminars
Upon approval of the Graduate Program Director and the instructor, up to six credits of electives may include the following:
Seminars in any other John Molson School of Business Master of Science (MSc) program; PhD Seminars in Organizational Behaviour and PhD Seminars in Business Policy and Strategy;
Cognate graduate seminars offered by other departments within the university.

3 credits:
- MSCA 694 Thesis Proposal (3.00)

18 credits:
- MSCA 695 Research Thesis (18.00)

Elective Management MSc Seminars

Each year a selection of specialized seminars will be offered on a rotating basis from those listed below:

- MSCA 643 Seminar in Motivation, Evaluation and Rewards (3.00)
- MSCA 646 Seminar in Leadership (3.00)
- MSCA 648 Seminar in International Management (3.00)
- MSCA 650 Advanced Analytic Techniques (3.00)
- MSCA 651 Seminar in Entrepreneurship across Contexts (3.00)
- MSCA 652 Seminar in Special Topics in Management (3.00)
- MSCA 653 Advanced Topics in Strategy (3.00)
- MSCA 658 Advanced Topics in Organizational Behaviour (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement for this master's degree is three terms of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Marketing MSc

Admission Requirements

- Bachelor's degree with high academic standing serves as a prerequisite for the program. To be eligible for admission, applicants must have maintained at least a *B* average in their final two years and have obtained a Grade Point Average (GPA) of at least 3.00 on a 4.30 scale, or the equivalent, from an accredited university.
- Applicants with insufficient prior training in their expected area of specialization may be required to take prerequisite courses in addition to the required coursework in the graduate program. The specific courses to be taken are determined by the Program Director depending upon the student's background and area of specialization.
- Applicants must submit transcripts, proof of satisfactory performance on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) completed within the previous five years, three letters of recommendation with the Academic Assessment forms, and a short statement of purpose. (Please note that the GMAT is preferred to the GRE).
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

The program is open to both full-time and part-time students.

Additional Admission Requirements

Concordia Comprehensive ESL Placement Test (ConCEPT). Applicants who have been admitted by a program and whose test results fall within the range requiring a language placement test are required to write the Concordia Comprehensive ESL Placement Test (ConCEPT).

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

In the first year of the program, candidates are required to complete a minimum of 24 credits and MSCA 655.

Please see the Finance, Management, Marketing, and Administration MSc (MSCA) Courses page for course descriptions.

Marketing MSc (45 credits)

12 credits of Core Courses:
- MSCA 602 Applied Linear Statistical Models (3.00)
- MSCA 618 Research Methods (3.00)
- MSCA 655 Professional Development (0.00)
- MSCA 678 Marketing Research Foundations (3.00)
- MSCA 679 Marketing Theory (3.00)

12 credits of Elective Marketing Seminars
A rotating set of electives will be offered by the department. Additionally, students can take electives from the PhD program or other MSc programs with prior approval of the Graduate Program Director.

3 credits:
- MSCA 694 Thesis Proposal (3.00)

18 credits:
- MSCA 695 Research Thesis (18.00)

MSc Marketing Seminars

Each year a selection of specialized seminars will be offered on a rotating basis from those listed below.

- MSCA 662 Seminar in Qualitative Research (3.00)
- MSCA 663 Seminar in Consumer Research Methods (3.00)
- MSCA 665 Seminar in Marketing Communications (3.00)
- MSCA 667 Seminar in Consumer Psychology and Decision Making (3.00)
- MSCA 668 Seminar in Innovation and Marketing (3.00)
- MSCA 669 Seminar in Pricing Management (3.00)
- MSCA 671 Seminar in Relationship Marketing Strategy (3.00)
- MSCA 672 Seminar in Special Topics in Marketing (3.00)
- MSCA 673 Seminar in Segmentation and Positioning Marketing (3.00)
- MSCA 674 Seminar in Meaning and Management of Brands (3.00)
- MSCA 675 Seminar in Retailing (3.00)
- MSCA 677 Seminar in Sustainability in Marketing (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement for this master's degree is three terms of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

Business Analytics and Technology Management (BATM) MSc

Admission Requirements

- Bachelor's degree with high academic standing serves as a prerequisite for the program. To be eligible for admission, applicants must have maintained at least a B average in their final two years and have obtained a Grade Point Average (GPA) of at least 3.00 on a 4.30 scale, or the equivalent, from an accredited university.
- Applicants with insufficient prior training in their expected area of specialization may be required to take prerequisite courses in addition to the required coursework in the graduate program. The specific courses to be taken are determined by the Graduate Program Director depending upon the student's background and area of specialization.
- Applicants must submit proof of satisfactory performance on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) completed within the previous five years, three letters of recommendation with the Academic Assessment forms, and a short statement of purpose. (Please note that the GMAT is preferred to the GRE).
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

The program is open to both full-time and part-time students.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

In the first year of the program, candidates are strongly encouraged to complete a minimum of 24 credits and MSCA 655.

Please see the Finance, Management, Marketing, and Administration MSc (MSCA) Courses section for course descriptions.

Business Analytics and Technology Management (BATM) MSc (45 credits)

9	credits of Core Courses: • MSCA 602 Applied Linear Statistical Models (3.00) • MSCA 655 Professional Development (0.00) • MSCA 680 Foundations of Business Technology Management (3.00) • MSCA 681 Foundations of Data Mining (3.00)
3	credits chosen from: • MSCA 615 Research Methodology - Administrative Sciences (3.00) • MSCA 616 Research Methodology - Management (3.00) • MSCA 618 Research Methods (3.00)
12	credits of Business Analytics and Technology Management (BATM) MSc Elective Courses
3	credits: • MSCA 694 Thesis Proposal (3.00)
18	credits: • MSCA 695 Research Thesis (18.00)

Business Analytics and Technology Management (BATM) MSc Elective Courses

Each year a selection of specialized seminars will be offered on a rotating basis from those listed below. Upon approval of the Graduate Program Director and the instructor, up to six credits of electives may include seminars in any other JMSB MSc program, PhD seminars of relevance to the program of study; and cognate graduate seminars offered by other departments within the university.

- MSCA 683 Applied Multivariate Data Analysis (3.00)
- MSCA 686 Competitive Advantage through Information Technology (3.00)
- MSCA 690 Data Management (3.00)
- MSCA 691 Advanced Data Mining (3.00)
- MSCA 693 Seminar in Special Topics in Business Analytics and Technology Management (BATM) (3.00)
- MSCA 697 Advanced Topics in Information Systems Development (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement for this master's degree is three terms of full-time study, or the equivalent in part-time study.
3. **Time Limit.** Please refer to the Academic Regulations of the Graduate Calendar page for further details regarding the Time Limits.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Supply Chain Management MSCM

Admission Requirements

- High academic standing in one of the following degrees: bachelor's degree in Commerce (or equivalent) with a major in any business discipline; bachelor's degree in any of the engineering disciplines; bachelor's degree in Economics / Mathematics / Applied Sciences.
- B average in the final two years of their undergraduate studies and have obtained a Grade Point Average (GPA) of at least 3.00 on a 4.30 scale, or the equivalent, from an accredited university.
- Applicants must submit proof of satisfactory performance on the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE) completed within the previous five years, two letters of recommendation with the Academic Assessment forms and a short statement of purpose. (Please note that the GMAT is preferred to the GRE).
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Concordia Comprehensive ESL Placement Test (ConCEPT). Applicants who have been admitted by a program and whose test results fall within the range requiring a language placement test are required to write the Concordia Comprehensive ESL Placement Test (ConCEPT).

The program is open to both full-time and part-time students.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Supply Chain Management (MSCM) Seminars page for course descriptions.

Supply Chain Management MSCM (45 credits)

6 credits of Core Seminars

3 credits:

• MSCA 602 Applied Linear Statistical Models (3.00)

3 credits chosen from:

• MSCA 615 Research Methodology - Administrative Sciences (3.00)
• MSCA 616 Research Methodology - Management (3.00)
• MSCA 618 Research Methods (3.00)

15 credits of Supply Chain Management Seminars:

• MSCM 681 Advanced Modelling and Optimization (3.00)
• MSCM 682 Sourcing and Global Logistics (3.00)
• MSCM 683 Supply Chain Design and Coordination (3.00)
• MSCM 684 Demand Management (3.00)
• MSCM 685 Supply Chain Risk Management (3.00)

3 credits of Elective Seminars chosen from:

• MSCA 625 Seminar in Options and Futures (3.00)
• MSCA 632 Seminar in Special Topics in Finance (3.00)
• MSCA 652 Seminar in Special Topics in Management (3.00)

- MSCA 657 Organizations and Strategy (3.00)
- MSCA 683 Applied Multivariate Data Analysis (3.00)
- MSCA 672 Seminar in Special Topics in Marketing (3.00)
- MSCA 686 Competitive Advantage through Information Technology (3.00)
- MSCA 691 Advanced Data Mining (3.00)
- MSCA 693 Seminar in Special Topics in Business Analytics and Technology Management (BATM) (3.00)

Notes:
Taking an elective seminar is subject to the academic advisor's approval. At most one elective seminar at the graduate level can be taken outside of the John Molson School of Business. Each year a selection of specialized seminars are offered on a rotating basis from those listed above.

21 credits:

- MSCA 699 Research Thesis (21.00)

Additional Degree Requirements

Residence. In accordance with standard university policy, the minimum residence requirement for this master's degree is three terms of full-time study, or the equivalent in part-time study. This requirement must be met regardless of the amount of graduate work previously completed in any other program or at any other university.

Qualifying Program. Up to three qualifying program courses are taken by those students who do not have a Supply Chain Management or Industrial Engineering degree. These courses are specified at the time of admission by the Admissions Committee, based on the academic background of the student. The qualifying program courses need to be successfully completed prior to starting the regular master program.

Academic Regulations

1. **Credit Load: Full-time Students**. The normal course load for full-time students is 12 credits in each of the terms in the first year; 6 credits and the 15-credit applied research project in the second year.
2. **Credit Load: Part-time Students.** The maximum course load for part-time students is 12 credits per calendar year. The 15-credit applied research project should take 6 to 12 months to complete.
3. **Course Reduction.** In exceptional circumstances, students may be granted permission to reduce their course load below the normal specified above while remaining in good standing.
4. **Program and Course Withdrawal.** Students who wish to apply for withdrawal from the program must do so in writing at the office of the Associate Dean, Research and Research Programs. Students may drop a course up to the end of the course change period. This is normally about two weeks after classes begin (see Academic Calendar). In addition to the regulations which appear in the Graduate Registration section of the Graduate Calendar, students enrolled in the program are required to observe the following rules.
5. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
6. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
7. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

Business Administration Graduate Diploma

Admission Requirements

- Bachelor's degree with a minimum cumulative grade point average of 2.70 on a scale of 4.30, or equivalent.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admissions Requirement

Applicants are also required to submit a Statement of Purpose and two letters of recommendation.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Business Administration Graduate Diploma Courses page for course descriptions.

Graduate Diploma in Business Administration (30 credits)

27	credits of GDBA Core Courses
3	credits chosen from the GDBA Electives list

GDBA Core Courses

- GDBA 530 Business Data Analytics (3.00)
- GDBA 531 Professional Business Skills (3.00)
- GDBA 532 Accounting (3.00)
- GDBA 533 Managing People in Organizations (3.00)
- GDBA 534 Marketing Management (3.00)
- GDBA 535 Finance (3.00)
- GDBA 536 Operations Management (3.00)
- GDBA 537 Managerial Economics (3.00)
- GDBA 538 Strategic Management (3.00)

Students who have successfully completed a statistics course in a previous program with a minimum grade of *B* may be exempt from taking GDBA 530 with the permission of the Program Director. In this case, the course must be substituted with an elective. See class schedule for elective offerings.

GDBA Electives

- GDBA 540 Entrepreneurship (3.00)
- GDBA 541 Business Law (3.00)
- GDBA 542 e-Marketing (3.00)
- GDBA 543 Project Management (3.00)
- GDBA 590 Special Topics in Accountancy (3.00)
- GDBA 591 Special Topics in Finance (3.00)
- GDBA 592 Special Topics in Management (3.00)
- GDBA 593 Special Topics in Marketing (3.00)
- GDBA 594 Special Topics in Supply Chain and Business Technology Management (3.00)

- GDBA 595 Special Topics (3.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

Chartered Professional Accountancy Graduate Diploma

Admission Requirements

- Bachelor's degree. Students holding an undergraduate degree with a major in Accountancy, with high academic standing (minimum GPA of 3.00 on a scale of 4.30, or the equivalent, and demonstrated overall proficiency in specific courses) will normally have satisfied the prerequisite requirements.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admissions Requirement

Please refer to the Graduate Diploma in Chartered Professional Accountancy Admissions page to review specific entry requirements and the list of prerequisite courses. Applicants lacking the appropriate undergraduate work are required to successfully complete certain qualifying courses, as assigned by the program director.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Chartered Professional Accountancy Diploma Courses page for course descriptions.

Graduate Diploma in Chartered Professional Accountancy (30 credits)

8 credits:
Core I Module
• ACCO 650 Financial Reporting in Practice (4.00)
• ACCO 651 Financial Reporting: Comprehensive Applications (4.00)

8 credits:
Core II Module
• ACCO 652 Business Advisory Services (4.00)
• ACCO 653 Information Systems and Internal Control (4.00)

2 credits:
Capstone I Module
• ACCO 658 Capstone I Seminar (2.00)

4 credits:
Capstone II Module
• ACCO 659 Capstone II Examination Preparation (4.00)

8 credits of Elective Courses, chosen from two of the following four courses, depending on students' interests and career aspirations:
• ACCO 654 Assurance and Professional Practice (4.00)
• ACCO 655 Taxation and Decision Making (4.00)
• ACCO 656 Performance Management (4.00)
• ACCO 657 Financial Strategies and Decisions (4.00)

Students who plan to practice public accounting must take ACCO 654 and ACCO 655

Note: In addition to the required diploma courses in the program, students may register for one or more tutorial courses, with the permission of the program director.

Additional Degree Requirements

Program Course Sequence. Students generally complete Core I Module courses (ACCO 650, ACCO 651) prior to taking Core II Module courses (ACCO 652, ACCO 653). Core I Module courses must be completed prior to taking Core II Module courses. These four courses are usually followed by two elective courses from a choice of four (ACCO 654, ACCO 655, ACCO 656, ACCO 657).

Students who wish to pursue their career in Public Accountancy must take ACCO 654 and ACCO 655. Upon completion of the six courses, all candidates are required to complete the two Capstone courses ACCO 658 and ACCO 659.

MBA Option. Students in good academic standing who meet the admission requirements of the MBA program, and who have completed the requirements for the Diploma in Chartered Professional Accountancy program, may be granted advanced standing upon admission to the MBA program. Please refer to the Master of Business Administration (MBA) section for more details.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Investment Management (DIM) Diploma

Note: Admissions have been suspended.

Admission Requirements

- Bachelor's degree, with high academic standing, or qualifications accepted as equivalent by the School of Graduate Studies and acceptance into the CFA® program are necessary for admission.
- Applicants are evaluated according to the following criteria: undergraduate performance, Graduate Management Admission Test (GMAT) scores, work experience, detailed evaluations from employers and former university instructors, and statements of self-assessment. Students without formal undergraduate training in quantitative methods, accounting, economics, and finance will be required to demonstrate adequate preparation.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admissions Requirement

GMAT requirements for GIIM applicants who have already passed CFA Level I examinations will be waived.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 33 credits and must have a minimum cumulative GPA of 2.70.

Please see the Investment Management Courses (Graduate Diploma, MBA and MIM) page for course descriptions.

Investment Management (DIM) Diploma (33 credits)

33 credits of Required Courses:

- GIIM 610 Economics (3.00)
- GIIM 611 Financial Statement Analysis I (3.00)
- GIIM 613 Asset Pricing and Portfolio Management I (1.50)
- GIIM 614 Security Valuation in the Domestic and International Environment (3.00)
- GIIM 616 Quantitative Techniques (3.00)
- GIIM 617 Corporate Finance (1.50)
- GIIM 618 Seminar in Corporate Finance (3.00)
- GIIM 620 Financial Statement Analysis II (3.00)
- GIIM 621 Fixed Income Analysis (1.50)
- GIIM 622 Derivatives (3.00)
- GIIM 623 Asset Pricing and Portfolio Management II (1.50)
- GIIM 624 Analysis of Equity Investments (3.00)
- GIIM 633 Investment Law and Ethics (3.00)

Additional Degree Requirements

Course Load. Normally students must register for a total of 33 credits over 2 years, and must achieve success in these courses in order to remain a student in good standing in the program.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.

2. **Residence.** The minimum residence requirement for the master's degree is 3 terms (one year) of full-time study.
3. **Time Limit**. Please refer to the Academic Regulations page for further details regarding the Time Limits.
4. **Graduation Requirement.** DIM students must have a cumulative GPA of 2.70 and are not required to complete the CFA® examinations.

Business Administration Graduate Certificate

Admission Requirements

- Bachelor's degree with a minimum cumulative grade point average of 2.70 on a scale of 4.30, or equivalent.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admissions Requirement

Applicants are also required to submit a Statement of Purpose and two letters of recommendation.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 15 credits.

Please see the Business Administration Graduate Certificate, Business Administration Graduate Diploma and Quantitative Business Studies Graduate Diploma Courses page for course descriptions.

Business Administration Graduate Certificate (15 credits)

12	credits of Core Courses: • GDBA 531 Professional Business Skills (3.00) • GDBA 532 Accounting (3.00) • GDBA 533 Managing People in Organizations (3.00) • GDBA 534 Marketing Management (3.00)
3	elective credits chosen from: • GDBA 530 Business Data Analytics (3.00) or any elective from the GDBA Electives list.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit**. Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

Entrepreneurship Graduate Certificate

Note: Admissions have been suspended.

Admission Requirements

- Bachelor's degree. Students holding an undergraduate degree with a major in Accountancy, with high academic standing (minimum GPA of 3.00 on a scale of 4.30, or the equivalent, and demonstrated overall proficiency in specific courses) will normally have satisfied the prerequisite requirements.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admissions Requirements

Applicants are also required to submit a Statement of Purpose and two letters of recommendation.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 30 credits.

Please see the Entrepreneurship Graduate Certificate Courses page for course descriptions.

Entrepreneurship Graduate Certificate (15 credits)

12 credits of Required Courses:
- GCE 511 Starting your Own Business (3.00)
- GCE 512 Marketing your Own Business (3.00)
- GCE 513 Growing your Own Business (3.00)
- GCE 514 Entrepreneurship: Venture Creation (3.00)

Note. GCE 511 must be taken previously or concurrently to all other courses in the program.

3 credits of Electives chosen from:
- GCE 595 Special Topics (3.00)

Or another course to be chosen from the GDBA Electives list or another course in the Graduate Diploma in Business Administration with permission of the Program Director.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

Quantitative Business Studies Graduate Certificate

Admission Requirements

- Bachelor's degree with a minimum cumulative grade point average of 2.70 on a scale of 4.30, or equivalent.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Applicants are also required to submit a Statement of Purpose and two letters of recommendation.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 15 credits.

Please see the Business Administration Graduate Diploma and Certificate, and Quantitative Business Studies Courses page for course descriptions.

Quantitative Business Studies Graduate Certificate (15 credits)

12 credits of Required Courses:
- GDBA 530 Business Data Analytics (3.00)
- GDBA 532 Accounting (3.00)
- GDBA 535 Finance (3.00)
- GDBA 537 Managerial Economics (3.00)

Notes: GDBA 530 and GDBA 532 must be taken previously or concurrently to GDBA 535. GDBA 530 must be taken previously or concurrently to GDBA 537.

3 credits chosen from the GDBA Electives list or another course in the GDBA Core Courses list with permission of the Program Director.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Graduation Requirement.** In order to graduate, students must have a minimum cumulative GPA of 2.70.

JMSB Co-operative Programs

The Graduate Co-op program is a structured internship program offered through the Institute for Co-operative Education. Students registered in a master's program at the John Molson School of Business are eligible to participate in the Co-op program. Please see the section of the Graduate Calendar for the Institute for Co-operative Education general guidelines and the web site of the Institute for Co-operative Education for information regarding membership.

Admission Criteria

In addition to the general requirements for entrance into the Institute for Co-operative Education, JMSB has these additional requirements:

- Students apply to the Graduate Co-op Program in the first term of their academic program. Some programs may require the completion of a minimum number of credits prior to the work term.
- Students must maintain a cumulative GPA of 3.30 or better throughout their studies. Some programs may have different GPA standards or additional admission requirements.
- Students in a thesis program require approval from their Graduate Program Director.
- Students complete one work term (four months).
- Students are not permitted to complete a co-op work term in the last term of their program of study. They must return after their co-op for a minimum of one term of course work.

Current Programs

Currently, students within the following degree programs are eligible to apply for entry into the Institute for Co-operative Education:

Master of Business Administration (MBA)

Investment Management Option (GIIM) MBA

Finance MSc

Management MSc

Marketing MSc

Business Analytics and Technology Management (BATM) MSc

Supply Chain Management MSCM

Additional Program Requirements

Master of Business Administration (MBA)

- Students accepted into the Co-op must have completed 24 credits.

Master of Business Administration - Investment Management Option (GIIM MBA)

- Students accepted into the Co-op must be registered as full-time, have completed 19.5 credits, maintain a cumulative GPA of 3.0 or better and must be approved by the Director of the program.
- In special cases, students may complete a second term with the permission of the Program Director and the Institute for Co-operative Education.
- Students must return to full-time study for their last term.

School of Graduate Studies Programs

Doctor/Doctorate

- Individualized Program (INDI) PhD

Master/Magisteriate

- Individualized Program (INDI) MA/MSc

Individualized Program (INDI) PhD

Admission Requirements

- Master's degree or its equivalent in a relevant disciplinary area.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Only outstanding applicants will be considered. Interested candidates should immediately consult the Individualized Program's (INDI) website to determine fields of study, potential supervisory committee members and other application procedures. Applicants should take note that entry to this program requires a clearly formulated program of study and the identification of a proposed supervisory committee as part of the application. (Doctoral applicants interested in pursuing a degree in inter-disciplinary studies in the areas of Interdisciplinary Studies in Society and Culture should apply to the Humanities Doctoral Program).

The INDI Program Committee reviews all application material submitted by the applicant.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 90 credits.

Please see the Individualized Program (INDI) Courses page for course descriptions.

Individualized Program (INDI) PhD (90 credits)

18 credits of Coursework taken from doctoral-level studies INDI courses OR from any regularly scheduled graduate courses with permission of the INDI Director.
Students are required to complete a minimum of 9 credits in regularly scheduled graduate courses, including a research methodology seminar in their first or second year. The latter seminar explores methodological issues relevant to the principal area of the student's research. It is chosen in consultation with the student's principal supervisor from among the numerous courses in methodology offered by different departments at Concordia University.

72 credits:
- INDI 885 Doctoral Comprehensive Examination (3.00)
- INDI 887 Doctoral Thesis Proposal (3.00)
- INDI 890 Doctoral Research and Thesis (66.00)

Additional Degree Requirements

The Individualized Program exists to promote innovative and creative approaches to issues that are outside the normal boundaries of investigation of existing graduate programs. Students are engaged in individualized research initiatives supported by an integrated program of study drawing on the various resources available at the University both within a Faculty or across Faculties. In most cases, individuals applying to an Individualized Program must propose a program of study involving multidisciplinary scholarship on problems that are not normally the province of disciplines represented by departments in this University. These applicants propose a supervisory committee involving faculty from at least two different departments/units. However, a limited number of students may be admitted who propose programs within a single discipline and involving faculty from only one department/unit. In all cases, applicants include a proposed supervisory committee, courses, and research plan.

Course Requirements for Students with a Pure and Applied Science, Computer Science or Engineering Concentration. Students with a pure and applied science, computer science or engineering concentration have the option of taking up to two directed research courses in fulfillment of their coursework requirements. The primary objective of such a course is for the student to acquire competencies in discipline specific research practices and/or generate useable research data under the direction of their principal supervisor.

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Residence.** The minimum period of residence is 24 months of full-time study, or its equivalent in part-time study.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 3.00.

Individualized Program (INDI) MA/MSc

Admission Requirements

- Bachelor's degree with high academic standing in a relevant disciplinary area or its equivalent.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Additional Admission Requirements

Only outstanding applicants will be considered. Interested candidates should immediately consult the Individualized Program's (INDI) website to determine fields of study, potential supervisory committee members and other application procedures. Applicants should take note that entry to this program requires a clearly formulated program of study and the identification of a proposed supervisory committee as part of the application. (Doctoral applicants interested in pursuing a degree in inter-disciplinary studies in the areas of Interdisciplinary Studies in Society and Culture should apply to the Humanities Doctoral Program).

The INDI Program Committee reviews all application material submitted by the applicant.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

Please see the Individualized Program (INDI) Courses page for course descriptions.

Individualized Program (INDI) MA/MSc (45 credits)

18 credits of Coursework chosen from 600-level INDI study courses OR from any regularly scheduled graduate courses with permission of the INDI Director.
Students are required to complete a minimum of 9 credits in regularly scheduled graduate courses, including a research methodology seminar in their first or second year. The latter seminar explores methodological issues relevant to the principal area of the students research. It is chosen in consultation with the students principal supervisor from among the numerous courses in methodology offered by different departments at Concordia University.

27 credits:

- INDI 687 Master's Thesis Proposal (3.00)
- INDI 690 Master's Research and Thesis (24.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Time Limit.** Please refer to the Academic Regulations page for further details regarding the Time Limits.
3. **Residence.** The minimum period of residence is 12 months of full-time study, or its equivalent in part-time study.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.

Interfaculty Programs

Master/Magisteriate

- Nanoscience and Nanotechnology MSc/MASc

Nanoscience and Nanotechnology MSc/MASc

Admission Requirements

- Bachelor's degree with high academic standing in physics, chemistry, biochemistry or a related science discipline; or in engineering.
- Applicants are considered by the Nanoscience and Nanotechnology Admission Committee. Students must indicate through which of the participating departments they wish to have their application reviewed.
- The program is open to full-time students only.
- **Proficiency in English.** Applicants whose primary language is not English must demonstrate that their knowledge of English is sufficient to pursue graduate studies in their chosen field. Please refer to the English language proficiency page for further information on requirements and exemptions.

Degree Requirements

Fully-qualified candidates are required to complete a minimum of 45 credits.

These requirements satisfy the general degree requirements for the Chemistry MSc and the Physics MSc and the Master of/Magistrate in Applied Science (MASc) offered by the Gina Cody School of Engineering and Computer Science.

Nanoscience and Nanotechnology MSc/MASc (45 credits)

6	credits of Core Courses: • NANO 610 Principles of Nanoscience and Nanotechnology (6.00) This course must be completed in the first term after entry.
6	credits minimum of Coursework, with two courses chosen from the Nanoscience Course List and the Nanotechnology Course List. Upon approval of the thesis advisory committee, one course may be replaced with an appropriate 600-level course from the student's home department.
33	credits chosen from one of the following: • CHEM 655 Master's Research and Thesis (33.00) • PHYS 790 Master's Research and Thesis (33.00) • ENGR 8901 Master of Applied Science Research and Thesis (29.00)
	If necessary and upon approval of the thesis advisory committee, the student will take additional courses to complete the program's required minimum of 45 credits.

Nanoscience Course List

- CHEM 651 Nanochemistry (3.00)
- CHEM 652 Nanomaterials Characterization (3.00)
- PHYS 636 Condensed Matter Physics I (3.00)
- PHYS 679 Selected Topics in Applied Physics (3.00)

Nanotechnology Course List

- CIVI 6681 Environmental Nanotechnology (4.00)
- ELEC 6241 VLSI Process Technology (4.00)
- ELEC 6281 Principles of Solid State Nanodevices (4.00)
- MECH 6491 Engineering Metrology and Measurement Systems (4.00)

Academic Regulations

1. **Academic Standing.** Please refer to the Academic Standing section of the Calendar for a detailed review of the Academic Regulations.
2. **Residence.** The minimum residence requirement is one year (3 terms) of full-time study.
3. **Time Limit.** Please refer to the Academic Regulation page for further details regarding the Time Limit requirements.
4. **Graduation Requirement.** In order to graduate, students must have a cumulative GPA of at least 2.70.
5. **Progress Report.** Each student's progress is formally evaluated on a periodic basis. To be permitted to continue in the program, students must obtain a cumulative grade point average (GPA) of 3.00 based on a minimum of 12 credits. Students whose GPA falls below 3.00 are considered to be on academic probation during the following review period. Students whose GPA falls below 3.00 for two consecutive review periods are withdrawn from the program.

Arts and Science Courses

Applied Human Sciences Courses

Biology Courses

Chemistry and Biochemistry Courses

Classics, Modern Languages and Linguistics Courses

Communication Studies Courses

Economics Courses

Education Courses

English Courses

Études françaises, cours

Geography, Planning and Environment Courses

Health, Kinesiology, and Applied Physiology Courses

History Courses

Humanities Courses

Journalism Courses

Mathematics and Statistics Courses

Philosophy Courses

Physics Courses

Political Science Courses

Psychology Courses

Religions and Cultures Courses

School of Community and Public Affairs Courses

Sociology and Anthropology Courses

Theological Studies Courses

Applied Human Sciences Courses

Youth Work Graduate Diploma Courses

Youth Work Graduate Diploma Required Courses

AHSC 510 Advanced Research Methods in Youth Work (3 credits)

Description:
This course reviews approaches to applied research that are applicable to youth work practice. Students compare a range of methodological approaches, explore definitions of evidence-based practice and learn techniques for collecting, analyzing and disseminating qualitative and quantitative data. Students undertake an applied research project, relevant to an area of practice or programs of intervention with youth. Emphasis is placed on ethical issues, developmentally appropriate research practices, and accountability.

Component(s):
Seminar; Workshop

AHSC 520 Psychoeducation and Youth Work Ethics in Practice (3 credits)

Description:
This course provides an introduction to applied ethics in youth work with a focus on the Code of Ethics of the Ordre des psychoéducateurs et psychoéducatrices du Québec. It also reviews the policy, legislative and organizational contexts of the practice of psychoeducation and youth work, and considers the ways in which models of ethical decision making inform practice. Topics include confidentiality and information sharing in inter-professional contexts, balancing issues of control, empowerment and education, developing critical reflexivity, and appreciating the complexities and dilemmas inherent in youth work practice.

Component(s):
Seminar; Workshop

AHSC 522 Fundamentals of Child and Youth Care Work (3 credits)

Description:
This course provides students with an understanding of the scope and status of child and youth care work, sensitizes them to the necessary competencies and daily challenges of this work in a range of settings, and reviews relevant theory. Intervention planning in the context of psychoeducation and relational child and youth care work is emphasized.

Component(s):
Seminar; Workshop; Modular

AHSC 525 Individual and Group Intervention with Youth (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: AHSC 522.

Description:
A main focus of this course is to develop skills in relationship building and communication with youth. A micro-skills approach is introduced, as well as principles of group leadership and crisis intervention with youth. Principles of reflexive youth work, including developmentally-informed group leadership, are also covered.

Component(s):
Seminar; Workshop

AHSC 527 Advanced Youth Work Intervention: Case Management and Supervision (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: AHSC 525.

Description:
This course explores the fundamental concepts and theories of case management and supervision as applied to youth work practice. Topics include supervisory relationship and process issues, self-care, ethical and professional considerations, leadership and mentoring relationships, multi-disciplinary teams and teamwork, managing change, debriefing in response to a crisis and developing, implementing and monitoring effective and collaborative case plans with young people and their families.

Component(s):
Seminar; Workshop

AHSC 530 Community Youth Development (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: AHSC 525.

Description:
This course explores both historical and contemporary foundations of non-formal, community-based youth development in Canada and internationally. It focuses on creating opportunities for youth to engage with individuals, organizations and institutions at the community level. Various community youth development models are explored in-depth with practical applications for community-based youth programs, including life skills, assets, resiliency, and ecological models. Emphasis is placed on research, theory and practice applied in community youth development environments.

Component(s):
Seminar; Workshop; Practicum/Internship/Work Term

AHSC 540 Mental Health and Addictions: Youth Work Perspectives, Policies and Practices (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: AHSC 525.

Description:
This course explores the precursors, presentations, nature and impacts of mental health concerns and addictions for youth, their families, and within communities. Students have the opportunity to develop, and apply within the classroom, knowledge and skills related to addictions and mental illness prevention, assessment and intervention, and mental health promotion. Topics include an introduction to adolescent psychopathology; diagnosis, assessment, and current policy and practices in relation to the current edition of the Diagnostic and Statistical Manual of the American Psychiatric Association (DSM); the uses of standardized testing to evaluate adaptation; psychopharmacology; suicide; evidence-based and alternative treatment interventions (e.g., psychoeducational approaches; dialectical behaviour therapy);ethical and legislative considerations; and the roles/responsibilities of youth workers in the inter-professional and community care of adolescents with mental health and/or addictions concerns.

Component(s):
Seminar; Workshop

AHSC 565 Parent-Child Relations (3 credits)

Description:
This course provides an advanced understanding of parenting theories, research, and applications in the context of parent-child relations over the life span. Topics include parenting rights and responsibilities, parenting practices and programs, high-risk parenting, issues in the transition from parenting children to parenting adolescents and parental assessment.

Component(s):
Lecture; Workshop

Youth Work Graduate Diploma Elective Courses

AHSC 512 Sexuality in Human Relations (3 credits)

Description:
This course provides students with knowledge of physical and psychosocial aspects of sexuality in relationships through life and specifically during adolescence with an examination of values, attitudes, and issues related to the development and expression of sexuality. Topics include gender identity development, fuzzy identities, teen pregnancy, family, cultural and media influences; historically and culturally based attitudes; prevention and sexually transmitted diseases; self-perception and identity in sexuality; sexual diversity; and emotion and sexuality. The course aims to foster respect for persons and diversity.

Component(s):
Seminar; Workshop

AHSC 513 Family Communication (3 credits)

Description:
This course is an examination of patterns, effective approaches, and issues in communication among persons in primary partnerships

and families with adolescents. It also explores topics such as diversity in forms of “family,” decision-making, problem-solving, power relations, gender issues, managing differences in expectations, and the influences of cultural, social, and economic contexts. Interventions for youth work practice designed to enhance communication and strengthen the parent-youth bond are explored.

Component(s):
Seminar; Workshop

AHSC 551 Counselling Skills and Concepts (6 credits)

Description:
This course advances students’ understanding of core counselling theories and develops an understanding for theoretical and value frameworks of the youth work therapeutic relationship. It fosters the application of essential helping skills for relational practice within youth work settings. Skill areas include attending skills, such as attending to nonverbal behaviour, reflection of content, reflection of feeling, paraphrasing and summarizing, empathy, selfdisclosure; and influencing skills, such as interpretation and analysis. Also highlighted are ethical issues, attention to cultural differences, and practitioner reflexivity.

Component(s):
Seminar; Workshop; Fieldwork

AHSC 560 Health Promotion (6 credits)

Description:
This course helps students to develop intervention skills and theoretical understanding in the area of health promotion across the lifespan. It is of particular interest to youth work students whose career interests involve lifestyle planning, health and wellness promotion, and stress management with young people. A holistic approach including cultural and developmental understandings are discussed in relation to the following topics: health and wellness, stress and illness, psychological and physical self-appraisal processes, psychosomatic processes and disorders, understanding addictions and their management, interventions to promote health and wellness, behavioural self-management, and issues in medical/psychological health compliance.

Component(s):
Seminar; Workshop

AHSC 598 Special Topics in Youth Work (3 credits)

Description:
Specific topics for this course and prerequisites relevant in each case are stated in the Graduate Class Schedule.

Component(s):
Seminar

AHSC 599 Independent Study (3 credits)

Prerequisite/Corequisite:
Permission of the Department is required.

Description:
Students work on topics in consultation with a study supervisor. The study may include readings, field studies, and/or research.

Component(s):
Independent Study

Youth Work Graduate Diploma Fieldwork Courses

AHSC 533 Internship I in Youth Work (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: AHSC 522; AHSC 525.

Description:
This entry-level internship in youth work is designed to provide an opportunity for a first field experience that promotes integration into a clinical or normative youth work setting. A major focus is on participatory observation. Students are required to participate in a field placement one day per week, for a total of 100 hours in settings such as schools, community organizations, hospitals, or rehabilitation centres. The site is selected in consultation with the Graduate Program Director.

Component(s):
Practicum/Internship/Work Term

AHSC 537 Internship II in Youth Work (6 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: AHSC 533; and 12 credits completed in youth work with permission of the Department.

Description:
This 220-hour internship is designed to provide a supervised apprenticeship in either a clinical or normative youth work setting that builds on the student's previous courses. The focus of this internship is that the student fully assumes all the duties and responsibilities of a youth worker in the same site selected for the first internship. The student's work is supervised and evaluated by an on-site field supervisor.

Component(s):
Seminar; Practicum/Internship/Work Term

Notes:

- Students who have received credit for AHSC 538 may not take this course for credit.

AHSC 538 Extended Internship in Youth Work (9 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: AHSC 533; and 12 credits completed in youth work with permission of the Department.

Description:
This 320-hour internship is designed to provide a full-time supervised experience in either a clinical or a normative youth work setting and requires additional hours to assist the student in building his/her application for licensing. The focus of this internship is that the student fully assumes all the duties and responsibilities of a youth worker in the same site selected for the first internship. The student's work is supervised and evaluated by an on-site field supervisor.

Component(s):
Seminar; Practicum/Internship/Work Term

Notes:

- Students who have received credit for AHSC 537 may not take this course for credit.

Human Systems Intervention MA Courses

Human Systems Intervention MA Core Courses

AHSC 610 Group Process Intervention (3 credits)

Description:
This course is oriented to the theory and practice of intervention in small groups. The course involves participation in a small group laboratory through which students' experiences are integrated with conceptual frameworks, including theories of group development and leadership. Ethical issues in group processes will be considered.

Component(s):
Laboratory (Group Relations)

AHSC 620 Learning and Individual Change Processes (3 credits)

Description:
This course will examine research and theory of individual learning and change which involves cognitive, affective and behavioural components. Intervention with an emphasis on a normative re-educative approach to facilitating learning and change will be emphasized. Illustrative intervention cases will be examined to identify essential qualities, underlying assumptions about learning and change in the context of human systems, and implications for the role of the intervener.

Component(s):
Seminar; Laboratory (Learning Change)

AHSC 631 Research Methods (3 credits)

Description:
This course examines research methods involved in action research and other applied field perspectives. Methods applicable at all stages of the research process include the literature review, defining the purpose of study, design of quantitative and qualitative research tools, data gathering, qualitative and quantitative data analysis, and reporting and communicating research results and recommendations.

Component(s):
Workshop; Research

Notes:

- Students who have received credit for AHSC 630 may not take this course for credit.

AHSC 632 Planning Human Systems Intervention (3 credits)

Description:
This course examines the design and implementation of intervention programs from a systems perspective based on organizational theories, needs assessment, theories of learning and change, and group processes. It builds on basic concepts of organizational dynamics and effective human systems. Emphasis is on understanding organizational and group processes, development of planning skills, and making strategic choices. Interventions are framed in the context of collaborative action research with participant involvement at all stages including problem analysis and definition, generating and selection intervention strategies, action planning, implementation, and project evaluation.

Component(s):
Workshop (Intervention Design)

Notes:

- Students who have received credit for AHSC 630 may not take this course for credit.

AHSC 660 Philosophy and Ethics of Intervention (3 credits)

Description:
This course will review the philosophical underpinnings of intervention in human systems with an emphasis on a normative re-educative approach. It will address core values and ethics imbedded in change efforts, as well as examining the philosophical roots of different traditions of change methodology. It will consider the philosophical implications of change agents functioning as consultants rather than experts and as process rather than content specialists. It will consider ethical and philosophical aspects of power, strategy, and conflict, among other issues associated with intervention.

Component(s):
Seminar; Workshop

AHSC 670 Consultation Methods (3 credits)

Description:

The course will examine current models of consultation. It will enable students to establish effective client-consultant relationships based on collaborative approaches to entry, diagnosis, planning, and implementation. Ethical concerns for consultation will be integrated with discussions of methodology. Through observation and analysis of student-designed interventions, the course will provide experience-based learning and feedback. Special attention will be given to considerations of power, conflict, decision-making, negotiation, problem-solving, planning, and strategy.

Component(s):

Practicum/Internship/Work Term; Fieldwork (Group Consulting)

AHSC 680 Facilitating Individual and Group Learning Processes (6 credits)

Prerequisite/Corequisite:

Students must have completed Year I coursework including (AHSC 610, AHSC 620, AHSC 631, AHSC 632, AHSC 660, and AHSC 670 prior to enrolling.

Description:

This course will focus on interventions at the individual and group levels. Client-centred models of working in groups to achieve learning and task objectives will be reviewed. Issues of design, planning, and implementation of learning programs for individuals and groups, including attention to power, problem-solving, decision-making and conflict management will be examined in a laboratory setting where students will plan and conduct a group learning program under supervision.

Component(s):

Seminar; Workshop

AHSC 685 Coaching Interventions and Processes (3 credits)

Description:

This course develops professional understanding of theories and methodologies relevant to individual coaching processes in the functioning of groups, organizations and communities. Emphasis is placed on the development of competencies in executive, managerial and employee coaching. Course content encompasses phases of the coaching process, communication methodologies, obstacles and barriers to change, individual change models, strategic individual interventions, dealing with resistance, philosophy and ethics of coaching, and coaching structures. Practical components are integrated into the course.

Component(s):

Seminar; Laboratory

Human Systems Intervention MA Elective Courses

AHSC 675 Introduction to Open Systems Theory (3 credits)

Description:
This course introduces the socio-ecological version of open systems theory (OST) and practice with a particular focus on the Search Conference, the Participative Design Workshop, and Unique Designs. OST was developed to promote and create change toward a world that is consciously designed by people, and for people, living harmoniously within their ecological systems, both physical and social. Students learn how to design and implement interventions in organizations, communities and larger social systems.

Component(s):
Seminar; Workshop

Notes:

- Students who have received credit for this course under an AHSC 681 number may not take this course for credit.

AHSC 681 Special Topics (3 credits)

Description:
Topical seminars will be offered to provide perspectives about current intervention themes. These may complement students' programs, but will not constitute part of the required curriculum. Examples include: emerging trends in organizational development; strategic planning models; the use of self as an instrument of change; intercultural issues in intervention; appreciative inquiry; complexity theory.

Component(s):
Seminar; Workshop

AHSC 682 Special Topics (6 credits)

Description:
Same as AHSC 681 when a second special topic is offered in the same term.

Component(s):
Seminar; Workshop

AHSC 695 Independent Study I (3 credits)

Description:
Students may pursue studies in areas of specialized professional interest related to the graduate program or as a means of strengthening understanding of the core areas of the graduate program.

Component(s):
Independent Study

AHSC 696 Independent Study II (3 credits)

Description:
Students may pursue a second area of specialized professional interest related to the graduate program or further develop understanding in the core areas of the graduate program.

Component(s):
Independent Study

Human Systems Intervention MA Project Courses

AHSC 698 Master's Project (15 credits)

Prerequisite/Corequisite:
The following course must be completed previously: AHSC 680.

Description:
Students must demonstrate their ability to conduct a complete intervention to effect change in a human system as the principal consultant in a collaborative relationship with a client representing that system. The project includes contracting with the client, gathering and analyzing data, implementing relevant intervention activities, and evaluating the intervention as well as their role.

Component(s):
Seminar; Fieldwork

Biology Courses

Biotechnology and Genomics Graduate Diploma Courses

BIOL 510 Bioinformatics (3 credits)

Description:
This course provides students with instruction in the basic techniques of bioinformatics, computational biology and biological data science. There are three major goals. The first goal is to introduce common bioinformatic software, databases and tools for analyzing molecular data. The second, is to provide students with methods from computational biology to test hypotheses using programming techniques. The third, is to provide an introduction to methods from data science for exploring large biological data sets using visualization, statistics and machine learning. This course is conducted through lectures and computer laboratories.

Component(s):
Lecture; Laboratory

BIOL 511 Genome Structure (3 credits)

Description:
This course provides an overview of genome analysis including: cloning systems; sequencing strategies; methods of detecting genes and approaches to mapping genomes. It covers the theory and design of the different approaches, and the analysis of genomic data generated from them.

Component(s):
Lecture

BIOL 512 Functional Genomics (3 credits)

Description:
This course focuses on the functional analysis of expressed genes and their products. Course content includes transcription profiling using microarrays and RNA-Seq, systematic identification of proteins using mass spectrometry, functional analysis by gene knock-outs, localization of gene products by gene knock-ins, recombinant protein synthesis and protein-protein interactions using affinity co-purification and protein complementation assays.

Component(s):
Lecture

BIOL 515 Biotechnology and Genomics Laboratory (3 credits)

Description:
This is a hands-on course on techniques used in biotechnology and genomics. Experiments conducted in this course include

separation and mapping of high molecular weight DNA fragments, shotgun sequencing, ESTs sequencing, protein production in bacteria and fungi, functional analysis of protein products, protein arrays, and in vivo detection of protein interactions.

Component(s):
Tutorial; Laboratory

Notes:

- This course incurs an additional fee to cover laboratory supplies and equipment.

BIOL 516 Project in Biotechnology and Genomics (6 credits)

Description:
Each student conducts a project under the supervision of a faculty member at Concordia or other research institutions affiliated with the program. The project topic requires approval by the course coordinator. The project is taken over an 8-month (10 hours per week) period at Concordia or other approved institutions or companies. The project is chosen from one or more of the following fields: biotechnology, genomics, bioinformatics, cell/molecular biology, synthetic biology and high-throughput experimentation. The nature of the project can be research, development, or application. A student who is working full- time or part-time can pursue the project in his/her place of employment subject to approval. (Approval is only given to projects which are clearly demonstrated to be independent of the regular work requirement). At the end of the project, the student is required to submit a report on the results of the project and present the results publicly in the form of a scientific poster or a short talk at a scheduled Genomics/Biotechnology Research Day.

Component(s):
Lecture

Notes:

- A student who is working full-time or part-time can pursue the project in his/her place of employment subject to approval. (Approval will only be given to projects which are clearly demonstrated to be independent of the regular work requirement).

BIOL 521 Industrial and Environmental Biotechnology (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: BIOL 511; BIOL 512.

Description:
This course provides an in-depth evaluation of current biotechnology tools used in pharmaceutical and forestry industries, and in environmental remediation. New technologies and genomic approaches that can be applied to these processes are also discussed.

Component(s):
Lecture

BIOL 523 Agriculture and Agri-Food Biotechnology (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: BIOL 511; BIOL 512.

Description:
This course provides an overview on the use of biotechnology in agriculture and in the agri-food industry. Plant genomics and genetic manipulation of plants are emphasized. Also discussed are biotechnology methods used in reducing agricultural pollutants and converting agricultural surplus to energy.

Component(s):
Lecture

BIOL 524 High-throughput Instrumentation (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: BIOL 511; BIOL 512.

Description:
This is a hands-on introduction to high-throughput instruments used in biotechnology and genomics. Students are exposed to capillary electrophoresis-based DNA sequencing, microplate-based PCR reactions and purification of PCR products, construction of DNA chips, microarray scanning, and liquid handling robotics.

Component(s):
Lecture

Notes:

- Enrolment in this course is restricted to ten students.

BIOL 525 Biological Computing and Synthetic Biology (3 credits)

Description:
This is an interdisciplinary course offered to students who are either in Biology or Electrical and Computer Engineering programs. Students are introduced to the emerging field of synthetic biology and learn to design computational machines that can be implemented in biological media. The term is divided into two phases. In Phase I, Biology students learn basic computer hardware and software concepts, while Engineering students are introduced to gene structure and recombinant DNA technology. In Phase II, all students learn the principles and various applications of cell-based computational machines. Students work in teams to create a project proposal to describe the design of a computational machine using gene regulatory networks. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for COEN 6211 or for this topic under a BIOL 631 or COEN 691 number may not take this course for credit.

BIOL 529 Values and Biotechnology (3 credits)

(Also listed as PHIL 629.)

Description:
This course examines normative issues around genetic engineering or other biotechnologies, including moral, metaphysical, epistemic or political questions.

Component(s):
Seminar

Notes:

- Students who have received credit for PHIL 429, PHIL 530, PHIL 629 or for this topic under a PHIL 498 or PHIL 633 number may not take this course for credit.

Biology MSc and PhD Advanced Topics and Reading Courses

The content of the reading courses will vary from year to year and will reflect the interests of the department and the instructor in the course. Not all courses will be offered in any given academic year. Details of the courses to be given together with their respective course contents will be available at the beginning of the academic year. The reading courses are designed to meet special needs of students in their areas of research, and involve the presentation, discussion and critical analysis of information from current journal articles.

BIOL 601 Readings in Ecology and Behaviour I (3 credits)

Component(s):
Lecture

BIOL 602 Readings in Cell and Molecular Biology I (3 credits)

Component(s):
Lecture

BIOL 606 Readings in Organismal Biology I (3 credits)

Component(s):
Reading

BIOL 607 Readings in Ecology and Behaviour II (3 credits)

Component(s):
Reading

BIOL 608 Readings in Cell and Molecular Biology II (3 credits)

Component(s):
Reading

BIOL 609 Readings in Organismal Biology II (3 credits)

Component(s):
Reading

BIOL 612 Advanced Topics in Evolution (3 credits)

Component(s):
Lecture; Reading

BIOL 613 Advanced Topics in Behavioural Ecology (3 credits)

Component(s):

Lecture; Tutorial

BIOL 614 Advanced Topics in Ecology (3 credits)

Component(s):
Tutorial

BIOL 615 Advanced Topics in Animal Biology (3 credits)

Component(s):
Reading

BIOL 616 Current Advances in Ecological Research (3 credits)

Description:
This course is given in alternate years and reviews selected areas of current research in ecology, evolution and behaviour through critical analysis of recent publications. Topics vary from year to year, and are determined in part by the interests of the students. Material covered may include papers published in refereed journals, monographs or books on specialized topics, or new textbooks covering advanced topics in a relevant area. Students are responsible for giving class presentations of selected material, leading class discussions, and submitting critiques and answers to assigned essay questions. Grading is based upon class participation, oral presentations and written work.

Component(s):
Lecture; Reading

BIOL 622 Advanced Techniques in Ecology (3 credits)

Description:
This course introduces students to a variety of techniques of experimental design, data collection, and quantitative analysis. Students participate in a series of modules, each of which presents experimental and analytical techniques appropriate for one area of modern research in ecology, behaviour, or evolution. Some modules require students to collect and subsequently analyze original data from field or laboratory settings. Modules and their contents may vary from year to year.

Component(s):
Tutorial; Laboratory

Notes:

- This course corresponds with undergraduate course BIOL 450 . It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit.

BIOL 623 Advanced Applied Ecology and Conservation (3 credits)

Description:
This course applies principles of ecology at the individual, population, community and ecosystem level to identify and solve practical environmental problems. Topics include pollution, climate change, and farming, harvesting renewable resources, designing nature reserves and conserving bio-diversity.

Component(s):
Lecture; Tutorial

Notes:

- This course corresponds with an undergraduate course description. It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit. This course is open to doctoral students only under exceptional circumstances.

BIOL 624 Advances in Decomposer Communities and Nutrient Cycling (3 credits)

Description:
This course examines the role of the microbial community in the fundamental processes of decomposition and nutrient cycling. We discuss the role of microbes in the breakdown of organic molecules and the release and transformation of mineral elements. Emphasis is placed on the interactions between decomposition and on the interactions between bacteria, fungi, and the microbes in the maintenance of nutrient cycles.

Component(s):
Lecture; Laboratory

Notes:

- This course corresponds with an undergraduate course description. It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit. This course is open to doctoral students only under exceptional circumstances.

BIOL 630 Advanced Topics in Bioinformatics (3 credits)

Component(s):
Lecture; Laboratory

BIOL 631 Advanced Topics in Biotechnology (3 credits)

Component(s):
Lecture

BIOL 632 Advanced Topics in Cell Biology (3 credits)

Component(s):
Lecture

BIOL 633 Advanced Immunology (3 credits)

Description:
The role of the immune system in maintenance of body homeostasis will be presented with particular reference to cells and tissues of the immune system, their organization as well as their structural and functional relationships. Topics include: maturation and differentiation of B and T lymphocytes; structure and properties of antibodies; immune responses to antigens; genetic aspects of antibody synthesis; immunological considerations in AIDS, cancer, and autoimmune diseases.

Component(s):
Lecture; Seminar

Notes:

- This course corresponds with an undergraduate course description. It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit. This course is open to doctoral students only under exceptional circumstances.

BIOL 634 Advanced Cell Biology (3 credits)

Description:
Lectures dealing with selected topics in mammalian cell biology. These include introduction to the elements of cell biology. Introduction to the elements of cell culture with reference to the growth and function of non-differentiated and differentiated cells. Control of cell cycling under normal and abnormal states, mechanisms of peptide and steroid hormone action with emphasis on intracellular signaling pathways. The control of gene transcription and detailed analysis of the effect of host cell factors on virus replication.

Component(s):
Lecture

Notes:

- This course corresponds with an undergraduate course description. It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit. This course is open to doctoral students only under exceptional circumstances.

BIOL 635 Advanced Topics in Molecular Genetics (3 credits)

Component(s):
Lecture

BIOL 640 Advanced Topics in Plant Biology (3 credits)

Component(s):
Lecture

BIOL 660 Advanced Plant Biochemistry (3 credits)

Description:
Biochemical study of the natural constituents and secondary metabolites unique to plants. Their biosynthesis, biotransformations, and functions in plants, as well as their economic and pharmacologic importance are stressed.

Component(s):
Lecture

Notes:

- This course corresponds with an undergraduate course description. It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit. This course is open to doctoral students only under exceptional circumstances.

BIOL 661 Advanced Tissue Culture (3 credits)

Description:
This course looks at plant-growth regulators, nutritional requirements, and other factors necessary for in-vitro culturing of plant cells and tissues. The course also discusses methods available for nuclear transfers and the propagation of transformed plants.

Component(s):
Lecture

Notes:

- This course corresponds with an undergraduate course description. It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit. This course is open to doctoral students only under exceptional circumstances.

BIOL 670 Scientific Communication (3 credits)

Description:

This course is offered every other year and is open to all graduate students in Biology or by special permission from the instructor. It is designed to present the requirements for publishable scientific writing, successful research proposals and the presentation of oral papers at scientific meetings. The course emphasizes good writing habits, focuses on the importance of thought, the conciseness of statements and clarity of exposition. The course combines lectures, group discussions, workshops and oral presentations. Marks are based on a number of written assignments, oral presentations as well as participation in class.

Component(s):

Lecture

BIOL 671 Scanning Electron Microscopy (3 credits)

Description:

This course is given alternate years in the Summer session and explains both the theory and practice of instrumentation and methodology. Students learn to operate the Scanning Electron Microscope (Séminaire.) and ancillary equipment such as sputter-coater and the critical point drier. Hands-on learning experience is stressed to acquire familiarity with special techniques. Instructions cover three aspects: instrumentation, specimen preparation (fixation and drying), and specimen mounting and coating.

Component(s):

Tutorial; Laboratory

Notes:

- This course corresponds with an undergraduate course description. It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit. This course is open to doctoral students only under exceptional circumstances.

BIOL 680 Advanced Topics in Biology (3 credits)

Component(s):

Lecture; Laboratory

BIOL 685 Advanced Topics in Microbiology (3 credits)

Component(s):

Lecture

BIOL 687 Advanced Molecular Genetics (3 credits)

Description:
This course concentrates on basic microbial and molecular genetics, introducing isolation and characterization of mutants, methods of mapping mutants, transposons, episomes, and recombinant DNA techniques.

Component(s):
Lecture; Conference

Notes:

- This course corresponds with an undergraduate course description. It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit. This course is open to doctoral students only under exceptional circumstances.

BIOL 688 Advances in Biological Regulatory Mechanisms (3 credits)

Description:
This course examines the molecular basis of the control of metabolic pathways with an emphasis on procaryote systems. The course concentrates on the analysis of the rationale of experimentation used to elucidate these regulatory mechanisms.

Component(s):
Lecture; Conference

Notes:

- This course corresponds with an undergraduate course description. It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit. This course is open to doctoral students only under exceptional circumstances.

BIOL 689 Advanced Techniques in Molecular Biology (3 credits)

Description:
Theory and practice of modern experimental procedures of molecular biology, including use of restriction enzymes, gene cloning, and hybridizations, DNA sequencing, site-directed mutagenesis, and the use of bacteria and phage in biotechnology.

Component(s):
Lecture; Laboratory

Notes:

- This course corresponds with an undergraduate course description. It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit. This

course is open to doctoral students only under exceptional circumstances.

BIOL 690 Advanced Gene Structure (3 credits)

Description:
This course deals with gene regulation in eukaryotes. Topics covered include transcription, transcript processing, translation, and post-translational processes.

Component(s):
Lecture

Notes:

- This course corresponds with an undergraduate course description. It is understood that an instructor who grants written permission to register in the course as a graduate student will require extra work from the students for graduate credit. This course is open to doctoral students only under exceptional circumstances.

Biology Thesis, Research, Qualifying Exam and Pedagogical Training Courses

BIOL 696 Master's Research and Thesis (36 credits)

Component(s):
Thesis Research

BIOL 801 Pedagogical training (3 credits)

Description:
Candidates are required to give four lectures (normally 75 minutes each) to undergraduate classes. Two lectures are in introductory level courses and two in advanced undergraduate courses. Tutorials are provided to introduce students to teaching methods.

Component(s):
Lecture

Notes:

- The course is marked on a pass/fail basis.

BIOL 802 Research seminar (3 credits)

Description:

Students are required to give one seminar to the Department based upon their research project. Normally the seminar is given in the second or third years of residency. The grade is based upon the presentation, content, and the student's ability to answer questions. The grade is assigned by the Graduate Program Director in consultation with the candidate's supervisory committee and other faculty members present at the seminar.

Component(s):

Lecture

Notes:

- Seminars are graded on a standard scale (A+ to F).

BIOL 850 Research proposal and qualifying exam (6 credits)

Description:

The student prepares a written research proposal based upon the research topic chosen for thesis research. The proposal is prepared in consultation with the supervisory committee and contains a literature review, a progress report and a detailed description of future experiments. The proposal should demonstrate a good understanding of the background of the project, the questions to be answered, and the experimental approaches needed to answer these questions. Both the written proposal and an oral summary of the proposal are presented to the examining committee within one year of entry into the PhD program. The examining committee consists of the student's supervisory committee plus two additional members of the Department of Biology and is chaired by the Graduate Program Director. The student is evaluated on the basis of the quality of the oral and written presentations of the proposal and on responses to questions from the examining committee. These questions extend into general areas as well as focusing directly on the thesis topic.

Component(s):

Lecture

Notes:

- The examining committee assigns one of the following three grades: 1) PASS: The student is admitted to candidacy for a PhD in Biology; 2) CONDITIONAL PASS: The student is admitted to candidacy but is required to complete at least one additional course. This grade is assigned only if the background preparation of the student is judged to be insufficient; 3) FAIL: The student must withdraw from the program. If the examining committee judges that the proposal has weaknesses that can be corrected with minor revisions, it may suspend assigning a mark for a period not exceeding three months. The revised proposal then is assigned one of the three above grades.

BIOL 890 Research and Thesis (75 credits)

Description:

A major portion of the PhD program involves the planning and execution of innovative and original research under the direction of a supervisor. It is expected that this research should result in publication in reputable journals, on which the candidate is the first author and the major contributor of ideas and experimental data. The thesis will be examined by a Thesis Examining Committee and will be defended orally.

Component(s):
Lecture; Thesis Research

Chemistry and Biochemistry Courses

Chemistry and Biochemistry MSc and PhD Courses

Specific course offerings in subject areas listed under Topics will generally vary from year to year, depending on the availability of faculty and the requirements of graduate students in the program.

Over the next few years, the department will offer a selection of courses from those listed below. Additional Selected Topics courses may be offered in a given year, and these will be identified by different subtitles. Further information on Selected Topics courses will be available from the department at the beginning of each academic year.

Topics in Analytical & Bioanalytical Chemistry

CHEM 610 Selected Topics in Analytical Chemistry (3 credits)

Description:
This course explores themes within the area of Analytical Chemistry.

Component(s):
Lecture

Notes:

- This course may be repeated for credit, provided that the subject matter is different each time.

CHEM 611 Advanced Bioanalytical Chemistry (3 credits)

Description:
This course presents the concepts, tools and common instrumental techniques employed in modern bioanalytical chemistry for the quantitative analysis of drugs, metabolites, toxins, environmental contaminants, biomarkers, proteins, biotherapeutics and/or DNA in biological samples. The main topics covered may include sample preparation; mass spectrometry; immunoassays; biosensors; microfluidics; bioanalytical method validation and discussion of emerging bioanalytical techniques and trends. The applications discussed encompass toxicology, forensics, pharmacokinetics, metabolism, clinical chemistry, environmental analysis and biotechnology.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under a CHEM 610 number may not take this course for credit.

CHEM 612 Analytical Separations (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 218; CHEM 312, or equivalent.

Description:
High performance liquid separations on an analytical (non-preparative) scale are surveyed. Fundamental separation mechanisms and application of the techniques are discussed. Emphasis is placed on separations of biologically relevant analytes which include peptides, proteins and nucleic acids.

Component(s):
Lecture

CHEM 614 Modern Aspects of Mass Spectrometry: Metabolomics and Proteomics (3 credits)

Prerequisite/Corequisite:

Description:
This course surveys and critically discusses the state-of the-art mass spectrometry-based approaches that are driving metabolomics and proteomics revolution for applications such as shotgun proteomics, quantitative proteomics, post-translational modifications, top-down proteomics, untargeted metabolomics, lipidomics, metallomics, structural biology and molecular structure characterization.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under a CHEM 630 number may not take this course for credit.

Topics in Bioorganic and Organic Chemistry

CHEM 620 Selected Topics in Organic Chemistry (3 credits)

Description:
This course explores themes within the area of Organic Chemistry.

Component(s):
Lecture

Notes:

- This course may be repeated for credit, provided that the subject matter is different each time.

CHEM 621 Physical Organic Chemistry (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 222 ; CHEM 235; CHEM 324 or CHEM 325; or equivalent.

Description:
Determination of organic reaction mechanisms using kinetics, activation parameters, acid-base catalysis, Bronsted catalysis law, solvent effects, medium effects, isotope effects, substitutent effects, and linear free energy relationships.

Component(s):
Lecture

CHEM 624 Organic Synthesis (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 222; CHEM 235; CHEM 324; or equivalent.

Description:
This course is concerned with synthetic strategy and design. It provides an introduction to advanced synthetic methods and reagents, involving heteroatoms such as sulphur, phosphorus, tin and selenium, as well as an overview of the uses of protecting groups in organic chemistry. The concept of retrosynthesis and a few asymmetric reactions are discussed using syntheses of natural products from the literature as examples.

Component(s):
Lecture

Notes:

- Students who have received credit for CHEM 623 may not take this course for credit

CHEM 623 Modern Aspects of Practical Mass Spectrometry (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 222, CHEM 235, CHEM 324, or equivalent.

Description:
This course is concerned with synthetic strategy and design. It provides an introduction to advanced synthetic methods and reagents, involving heteroatoms such as sulphur, phosphorus, tin and selenium, as well as an overview of the uses of protecting groups in organic chemistry. The concept of retrosynthesis and a few asymmetric reactions are discussed using syntheses of natural products from the literature as examples.

Component(s):
Lecture

CHEM 625 Nucleic Acid Chemistry (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 221; CHEM 222; CHEM 271; or equivalent.

Description:
This course introduces students to various topics in nucleic acid chemistry. The topics include nomenclature, structure and function of RNA and DNA; techniques and methods to investigate nucleic acid structure; DNA damage and repair; interaction of small molecules and proteins with nucleic acid; oligonucleotide-based therapeutics (antisense, antigene, RNAi); synthesis of purines, pyrimidines and nucleosides; and solid-phase oligonucleotide synthesis.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under a CHEM 620 number may not take this course for credit.

CHEM 626 Reactive Intermediates (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 324; CHEM 325; or equivalent.

Description:
This course offers an introduction to reactive intermediates with an emphasis on structure and stability as found in modern (physical) organic chemistry. While the focus is on radicals and carbenes, carbocations are discussed near the end of the term. The material covered is relevant to chemistry and biochemistry.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under a CHEM 621 number may not take this course for credit.

CHEM 627 Supramolecular Chemistry (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 324 or CHEM 325; CHEM 335; or equivalent. If prerequisites are not satisfied, permission of the Department is required.

Description:
This course reviews some fundamental aspects of synthetic and biological supramolecular chemistry and nanotechnology. Topics covered may include supramolecular forces, ion binding and ion channels, molecular recognition, self-assembly (meso-scale and molecular-scale), organometallic supramolecular chemistry, dynamic combinatorial chemistry (DCC), and foldamers.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under a CHEM 620 number may not take this course for credit.

CHEM 628 Medicinal Chemistry (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 293, CHEM 324.

Description:
This course provides an introduction to the small molecule drug discovery process, addressing early target identification, hit discovery, lead optimization and preclinical considerations. The course focuses primarily on the rational design and synthesis of drugs that employ multidisciplinary approaches to satisfy a multitude of specificity and safety requirements. The emphasis is on organic synthesis within the special context of medicinal chemistry that illustrates the challenges involved in leveraging the opportunities presented by high throughput, parallel and/or combinatorial synthesis in light of physical limitations imposed by processing large numbers of compounds. Case studies from the current literature are used to highlight how new technologies and strategies have overcome some of those limitations and are used to highlight recent innovations in the field. The course also charts the evolution of powerful techniques from structural research (NMR, X-ray crystallography, and computational modeling) as fully integrated medicinal chemistry tools for modern drug-discovery to highlight key advances.

Component(s):
Lecture

CHEM 629 Polymer Chemistry and Nanotechnology (3 credits)

Description:
This course introduces some basic aspects of polymer chemistry with an emphasis on polymer synthesis. Various methods are

discussed, including classical step growth, free radical, and ring opening polymerization; and other more recent methods such as living anionic, living cationic, and living controlled/radical polymerization. Additionally, the design and development of functional polymers as building blocks to develop nanomaterials for bio-related applications, particularly drug delivery applications, are presented. Other topics may include amphiphilic block copolymers, self-assembly, micellar nanocarriers, cellular imaging, multifunctional drug delivery, cross-linked nanogels/hydrogels, materials science, and biomedical engineering.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under a CHEM 620 number may not take this course for credit.

Topics in Physical Chemistry

CHEM 630 Selected Topics in Physical Chemistry (3 credits)

Description:
This course explores themes within the area of Physical Chemistry.

Component(s):
Lecture

Notes:

- This course may be repeated for credit, provided that the subject matter is different each time.

CHEM 631 Computational Chemistry (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 234; CHEM 241; CHEM 333; or equivalent. If prerequisites are not satisfied, permission of the Department is required.

Description:
This course presents the concepts, tools, and techniques of modern computational chemistry, and provides a very broad overview of the various fields of application across chemistry and biochemistry. The course is divided into two parts: 1) Molecular structure, which covers molecular mechanics and elementary electronic structure theory of atoms and molecules; and 2) Chemical reactivity, which covers applications of quantum chemistry and molecular dynamics techniques to studies of chemical reactions. The applications discussed include organic molecules and their reactions, peptides and proteins, drug design, DNA, polymers, inorganics, and materials. The course includes a practical component where students acquire hands-on experience with commonly used computational chemistry computer software. Lectures and laboratory.

Component(s):
Lecture

CHEM 633 Quantum Mechanics in Chemistry (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 333; CHEM 431 or CHEM 631; or equivalent.

Description:
This course includes a thorough review of basic quantum mechanics in both the Schroedinger and Heisenberg representations, electronic structure theory, symmetry and group theory, interaction of matter with light, quantum scattering, the path integral formalism, quantum theories of chemical reaction rates, time-dependent approaches to spectroscopy, wave packet propagation, correlation functions and dynamics processes, and density matrices.

Component(s):
Lecture

CHEM 635 Interfacial Phenomena (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 234; CHEM 235; or equivalent.

Description:
This course examines the physical chemistry of interfaces including surface and interfacial tensions, the absorption of surface active substances/surface excess properties, and surfactant self-assembly. Topics covered may include Gibbs and Langmuir monolayers, micelle formation, emulsions, foams, surfactant liquid crystals, layer-by-layer polymer self-assembly, and biological membranes. Techniques for characterization and applications (biological and industrial) of these systems are addressed.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under a CHEM 630 number may not take this course for credit.

CHEM 636 Molecular Modelling of Proteins (3 credits)

Description:
This course offers a hands-on introduction to the computer tools used to predict the structure of a protein from its amino acid sequence, and to gain insight into its function. Students learn modelling techniques such as sequence alignment, homology modelling, computer visualization, molecular dynamics, and molecular docking. Computer laboratory with pre-lab lectures.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for this topic under a CHEM 630 number may not take this course for credit.

CHEM 638 Physics and Chemistry of Solid State Electronic Materials (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 234; CHEM 333; or equivalent.

Description:
This course essentially explores how electrical conductivity is influenced by the nature of the chemical bonding in these solid-state materials. The course provides an introduction to solid-state structures and then goes on to explore band theory, the central model used to describe electrical conductivity in the following three categories of electronic materials: conductors, semiconductors, and insulators. Finally, the course explores the extension of the band model to interpret electrical conductivity in molecular semiconductors and charge-transfer complexes.

Component(s):
Lecture

Topics in Bioinorganic & Inorganic Chemistry

CHEM 640 Selected Topics in Inorganic Chemistry (3 credits)

Description:
This course explores themes within the area of Inorganic Chemistry.

Component(s):
Lecture

Notes:

- This course may be repeated for credit, provided that the subject matter is different each time.

CHEM 643 Organometallic Chemistry (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 324; CHEM 341; or equivalent.

Description:
This course covers the structure and properties of organometallic compounds, their main reactions and their application in catalysis and organic chemistry.

Component(s):
Lecture

CHEM 645 Bioinorganic Chemistry (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 241; CHEM 271; or equivalent.

Description:
This course covers the role of metals in biochemical systems. Specifically, it focuses on essential trace elements, zinc enzymes, oxygen transport and storage, metalloproteins and biological electron transfer, structure-function relationships in heme enzymes, nitrogen fixation; model compounds for metalloproteins and metalloenzymes.

Component(s):
Lecture

CHEM 647 Solar Energy Conversion (3 credits)

Description:
This course explores how chemistry enables solar energy conversion (as a source of alternative energy) through photochemistry/photobiology and photovoltaics (solar cells). In the first subject area, solar energy conversion through artificial photosynthesis, solar fuels catalysis, and photobiological fuel production is examined. In the second subject area, the fundamental principles governing solar energy to electricity conversion, efficiency of solar cells, different photovoltaic implementations (inorganic, organic, hybrid) and charge separation/transport are explored. Special focus topics include the design, synthesis and spectroscopic tools needed to study inorganic molecules and materials for solar fuels catalysis.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under a CHEM 630 number may not take this course for credit.

CHEM 646 Industrial Catalysis (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 234; CHEM 235; or equivalent.

Description:
This course covers basic and recent concepts in catalysis are described with particular emphasis on heterogenous catalysis. The technical, economic and environmental aspects of industrial catalysis are covered. The processes to be studied are chosen from the petroleum industry, the natural gas and coal processing industry, and the production of thermoplastics and synthetic fibres. The course ends with a rapid survey of problems associated with the treatment of industrial pollutants and with catalytic converters.

Component(s):
Lecture

Topics in Multidisciplinary Chemistry

CHEM 650 Selected Topics in Multidisciplinary Chemistry (3 credits)

Description:
This course explores themes within the area of Multidisciplinary Chemistry.

Component(s):
Reading

Notes:

- This course may be repeated for credit, provided that the subject matter is different each time.

CHEM 651 Nanochemistry (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 217; CHEM 218; CHEM 221; CHEM 222; CHEM 234; CHEM 235; CHEM 241; or equivalent.

Description:
This modular course covers the areas of production, characterization and applications of nanoscale structures and materials. Each module is taught by a different professor as well as guest lecturers. Topics may include (but are not limited to): size dependent properties, synthesis of organic and inorganic nanostructures, self-assembled structures, chemical patterning and functional nanopatterns, biomaterials. Nanometer scale fabrication techniques such as lithographic methods, nano-stamping and patterned self-assembly are discussed. Modern analysis techniques such as atomic force microscopy and electron microscopy, which are used to map and measure at the single molecule level are introduced. Applications such as photonics, optical properties, biodetection and biosensors, micro- and nano-fluidics, nanoelectronics and nanomachines are presented. The course includes a term project carried out using the nanoscience facilities held in the department research labs.

Component(s):
Lecture

CHEM 652 Nanomaterials Characterization (3 credits)

Prerequisite/Corequisite:
Students must complete 30 credits of CHEM courses including CHEM 293 or CHEM 335; or NANO 610.

Description:
This course covers state-of-the-art nanomaterials physical characterization techniquesincluding but not limited to: dynamic light scattering, transmission and scanning electronicmicroscopies (size and morphology), X-ray powder and electron diffraction (crystallinityand phase identification), Fourier transform/attenuated total reflectance infrared, Ramanand X-ray photoelectron spectroscopies (surface chemical state and chemicalcomposition), differential scanning calorimetry and thermogravimetric analysis(polymorphism, moisture content and weight loss), Brunauer–Emmett–Teller analysis(surface area), nuclear magnetic resonance (chemical bonding and nuclei interactions).Content is delivered through lectures and laboratory demonstrations.

CHEM 658 Aquatic Biogeochemistry (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 217; CHEM 218; CHEM 312; or equivalent.

Description:
The major aim of this course is to present a quantitative treatment of the variables that determine the composition of natural waters. Chemical equilibrium is the central theme of the course, but consideration is also given to kinetics, steady-state and dynamic models. Related themes include global chemical cycles, air and water pollution, as well as current research topics in water chemistry and chemical oceanography. Lectures only.

Component(s):
Lecture

Notes:

- Students who have received credit for CHEM 618 or for this topic under a CHEM 610 number may not take this course for credit.

Topics in Biochemistry

CHEM 670 Selected Topics in Biochemistry and Biophysics (3 credits)

Description:
This course explores themes within the area of Biochemistry and Biophysics.

Component(s):
Lecture

Notes:

- This course may be repeated for credit, provided that the subject matter is different each time.

CHEM 676 Structure and Function of Biomembranes (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: BIOL 266; CHEM 375; or equivalent.

Description:
Examples from the current literature are used to discuss what is known about how the membranes of biological organisms are assembled and the roles that these membranes play in a number of important processes. Emphasis is placed on the transport of proteins to and through biomembranes and the roles that membranes play in metabolite and ion transport. Where applicable, the significance of these processes is illustrated by examining the roles of membranes in health and disease.

Component(s):
Lecture

Notes:

- Students who have received credit for CHEM 671 may not take this course for credit.

CHEM 674 Chemical Biology of Natural Products (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: CHEM 375 or equivalent. If prerequisites are not satisfied, permission of the Department is required.

Description:
This course examines how natural products interact with their cellular targets, with a special emphasis on the role of antibiotics and anticancer drugs. It also explores the role of these compounds in their natural environment, with a focus on intra-species competition and symbiosis.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under a CHEM 670 number may not take this course for credit.

CHEM 677 Enzyme Kinetics and Mechanism (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 271; CHEM 375; or equivalent.

Description:
This course explores steady-state kinetics, including such topics as the use of initial velocity studies and product inhibition to establish a kinetic mechanism; nonsteady-state kinetics, isotope effects, energy of activation, and the detailed mechanisms of selected enzymes.

Component(s):
Lecture

CHEM 678 Protein Engineering and Design (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 271; CHEM 375; or equivalent.

Description:
This course examines the principles behind protein design, how techniques of protein engineering are used, and the methods used to assess protein properties. Examples include studies of protein stability, structure-function relationships, and applications to drug design.

Component(s):
Lecture

Topics in Instrumentation

CHEM 690 Selected Topics in Instrumentation (3 credits)

Description:
This course explores themes within the area of Instrumentation.

Component(s):
Lecture

Notes:

- This course may be repeated for credit, provided that the subject matter is different each time.

CHEM 691 Magnetic Resonance Spectroscopy (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHEM 222; CHEM 393; or equivalent.

Description:
This course is designed to provide the background in magnetic resonance theory necessary to understand modern high-resolution NMR experiments and instrumentation. The basic theory in the introductory section also applies to electron spin resonance (ESR). Relaxation and through-bond and through-space interactions, and experiments to investigate them are considered. Spin manipulations and behaviour in multiple-pulse, Fourier transform NMR techniques used for common spectral editing and two-dimensional experiments are discussed.

Component(s):
Lecture

CHEM 692 Experimental Protein Chemistry (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: CHEM 477 or equivalent. If prerequisites are not satisfied, permission of the Department of Chemistry and Biochemistry is required.

Description:
This “hands on” course introduces students to the common techniques used to study the structure and function of proteins and other macromolecules. Techniques covered include circular dichroism spectroscopy, fluorescence, UV/Vis spectroscopy, Fourier transform infrared spectroscopy, isothermal titration microcalorimetry, analytical ultracentrifugation, and protein crystallization/X-ray crystallography. The course includes theory, applications of the technique to the study of protein structure and function, and basic practice experiments to become familiar with the instrument and data analysis. For some of the techniques covered hands-on use will be limited. Each student is required to carry out a project on his/her own protein of interest. Each participant asks a specific question about a protein and then uses the techniques covered in the course to address the question.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for this topic under a CHEM 690 number may not take this course for credit.

Chemistry and Biochemistry Theses, Seminars, Comprehensive Exam and Special Courses

CHEM 655 Master’s Research and Thesis (33 credits)

Description:

Students will work on a research topic under the direction of a faculty member and present an acceptable thesis at the conclusion. The thesis will be examined by the student's supervisory committee before being accepted by the department. In addition, an oral examination will be conducted before a committee of the department to test the student's ability to defend the thesis.

Component(s):
Thesis Research

Notes:

- Students may submit a manuscript-based thesis following the guidelines outlined in the section on Thesis regulations in this calendar. In addition, an oral examination will be conducted before a committee of the department to test the student's ability to defend the thesis.

CHEM 666 MSc Seminar (3 credits)

Description:
This course is designed to develop scientific communication skills in a professional forum via presenting a seminar on their MSc research topic. Students critique the seminars of their peers, write an abstract, prepare presentation materials, give a seminar and defend their research to a broad and critical audience of chemistry and biochemistry faculty and peers.

Component(s):
Seminar

CHEM 667 PhD Literature/Topic Seminar (3 credits)

Component(s):
Seminar

CHEM 668 PhD Research Seminar (3 credits)

Description:
This course is designed to develop scientific communication skills in a professional forum by presenting a seminar on a current project/problem in their PhD research. Emphasis is placed on pedagogical approaches to broad-audience seminars with strong emphasis on critical analysis of data and clarity of interpretation. Students critique the seminars of their peers, write an abstract/advertisement for their seminar, prepare presentation materials, give a seminar and defend their research to a broad and critical audience of chemistry and biochemistry faculty members and peers.

Component(s):
Seminar

CHEM 856 Doctoral Research and Thesis (72 credits)

Description:

Students will work on a research topic under the direction of a faculty member and present an acceptable thesis at the conclusion. In addition, a public oral examination will be conducted to test the student's ability to defend the thesis.

Component(s):

Thesis Research

Notes:

- Students may submit a manuscript-based thesis following the guidelines outlined in the section on Thesis regulations in this calendar.

CHEM 896 Research Proposal and Comprehensive Examination (9 credits)

Description:

A student in the doctoral program is required to present a progress report on his/her research and on future research plans. The presentation should reflect the student's awareness of current research in his/her field and demonstrate an ability to carry out a significant research problem and provide a rational approach to its solution. The student's knowledge and understanding of fundamental chemical and biochemical principles will also be examined.

Component(s):

Research

Notes:

- The Examining Committee assigns one of the following two grades: (a) PASS - the student is admitted to candidacy for a PhD degree in Chemistry; (b) FAIL - the student must withdraw from the program.
- The student is expected to complete this course within 18 months of admission directly into the PhD program, or within 28 months of admission via the MSc stream. In exceptional circumstances the department may permit an extension of time for completion of this course.

Classics, Modern Languages and Linguistics Courses

Hispanic Studies MA Core Courses

SPAN 601 Discourse Analysis and Research Methods (3 credits)

Description:
This course is designed to provide both a broad theoretical introduction and concrete practice in the research and analysis of literary and cultural texts. Students consider, critique, and incorporate theory and criticism into the articulation and elaboration of an analytical essay. They also implement fundamental research practices such as performing bibliographical searches and documentation; implementing narrative, argumentative, and persuasive rhetorical strategies; and, finally, developing a rigorously defended and coherent argument.

Component(s):
Lecture

SPAN 603 Introduction to the Pedagogy of Spanish (3 credits)

Description:
: In this course, students learn and implement important aspects of teaching methodology and techniques. Opportunities for observation of Spanish classes are provided. Students apply the techniques learned in micro-teaching and peer teaching exercises. Assignments include lesson planning and the evaluation of teaching performance. This course will be offered in the first semester of every year. In order to integrate practice into the curriculum, an effort will be made to offer students an opportunity to teach an Introductory Spanish language course.

Component(s):
Lecture

Hispanic Studies Elective Courses

SPAN 605 Independent Study (3 credits)

Description:
Under the supervision of a faculty member, the student undertakes research in a defined topic related to the student's interest and the faculty member's field of specialization. A final research paper is required.

Component(s):
Tutorial

SPAN 681 Research Seminar (3 credits)

Description:
Students meet with peers and faculty for discussion and presentation of their current research.

Component(s):
Seminar

SPAN 698 Topics in Current Research (3 credits)

Description:
When offered, content will depend on the theme designated by the program. Students may re-register for this course, provided that the course content has changed. Change in content will be indicated by changes to the title in the course schedule.

Topics in Applied Linguistics and the Pedagogy of Spanish

SPAN 621 Topics in Applied Linguistics and the Pedagogy of Spanish (3 credits)

Description:
This course addresses different theoretical aspects of Spanish pedagogy, such as learning theories, curriculum planning, interlanguage development, the teaching and learning of phonology, phonetics, grammar, and vocabulary acquisition.

Component(s):
Lecture

SPAN 622 Topics in Applied Linguistics and the Pedagogy of Spanish (3 credits)

Description:
This course addresses different theoretical aspects of Spanish pedagogy, such as learning theories, curriculum planning, interlanguage development, the teaching and learning of phonology, phonetics, grammar, and vocabulary acquisition.

Component(s):
Lecture

Topics in Spanish Translation

SPAN 631 Topics in Spanish Translation (3 credits)

Description:
This course explores different theoretical aspects of translation, such as languages in contact (bilingualism, interpretation, Chicano/a literature, contrastive grammars), diachronic and synchronic linguistic variation and its representation in time and space, as well as provides students with the opportunity to practice their translation skills.

Component(s):
Lecture

SPAN 632 Topics in Spanish Translation (3 credits)

Description:
This course explores different theoretical aspects of translation, such as languages in contact (bilingualism, interpretation, Chicano/a literature, contrastive grammars), diachronic and synchronic linguistic variation and its representation in time and space, as well as provides students with the opportunity to practice their translation skills.

Component(s):
Lecture

SPAN 633 Topics in Spanish Translation (3 credits)

Description:
This course explores different theoretical aspects of translation, such as languages in contact (bilingualism, interpretation, Chicano/a literature, contrastive grammars), diachronic and synchronic linguistic variation and its representation in time and space, as well as provides students with the opportunity to practice their translation skills.

Component(s):
Lecture

SPAN 634 Topics in Spanish Translation (3 credits)

Description:
This course explores different theoretical aspects of translation, such as languages in contact (bilingualism, interpretation, Chicano/a literature, contrastive grammars), diachronic and synchronic linguistic variation and its representation in time and space, as well as provides students with the opportunity to practice their translation skills.

Component(s):
Lecture

Topics in Critical Thinking and Theory

SPAN 641 Topics in Critical Thinking and Theory (3 credits)

Description:
Through the study of cultural discourses of the Hispanic world, this thematic area aims to improve the understanding and praxis of rational analysis and argumentation, as well as to examine the intimate relationship between linguistic/language theory and cultural analysis. Topics may include rhetoric, pragmatics and hermeneutics, as well as the analytical practices of a number of linguistic and literary theorists.

Component(s):
Lecture

SPAN 642 Topics in Critical Thinking and Theory (3 credits)

Description:
Through the study of cultural discourses of the Hispanic world, this thematic area aims to improve the understanding and praxis of rational analysis and argumentation, as well as to examine the intimate relationship between linguistic/language theory and cultural analysis. Topics may include rhetoric, pragmatics and hermeneutics, as well as the analytical practices of a number of linguistic and literary theorists.

Component(s):
Lecture

SPAN 643 Topics in Critical Thinking and Theory (3 credits)

Description:
Through the study of cultural discourses of the Hispanic world, this thematic area aims to improve the understanding and praxis of rational analysis and argumentation, as well as to examine the intimate relationship between linguistic/language theory and cultural analysis. Topics may include rhetoric, pragmatics and hermeneutics, as well as the analytical practices of a number of linguistic and literary theorists.

Component(s):
Lecture

SPAN 644 Topics in Critical Thinking and Theory (3 credits)

Description:
Through the study of cultural discourses of the Hispanic world, this thematic area aims to improve the understanding and praxis of rational analysis and argumentation, as well as to examine the intimate relationship between linguistic/language theory and cultural analysis. Topics may include rhetoric, pragmatics and hermeneutics, as well as the analytical practices of a number of linguistic and

literary theorists.

Component(s):
Lecture

Topics in the Subject and Identity

SPAN 651 Topics in the Subject and Identity (3 credits)

Description:
This area examines the artistic, literary and philosophical conceptualizations of subject and identity in the Hispanic world, including the problematics of gender, the (visual) image, the gaze, the body, etc. Topics may include the image of the gendered subject, analyses of dramatic works and film, the 'visibility' of the subject in the media, literature and/or paraliterature of a period and/or geographical area.

Component(s):
Lecture

SPAN 652 Topics in the Subject and Identity (3 credits)

Description:
This area examines the artistic, literary and philosophical conceptualizations of subject and identity in the Hispanic world, including the problematics of gender, the (visual) image, the gaze, the body, etc. Topics may include the image of the gendered subject, analyses of dramatic works and film, the 'visibility' of the subject in the media, literature and/or paraliterature of a period and/or geographical area.

Component(s):
Lecture

Topics in Exile and Marginality

SPAN 661 Topics in Exile and Marginality (3 credits)

Description:
This course examines exile as an epistemological, ontological, aesthetic, linguistic and political category within the Hispanic world. Courses may concentrate on writers and/or artists in exile, political and national identity, as well as gender issues in different eras and geographical spaces. Topics may include the examination of discourses of crisis in different eras: modernization; testimonio literature; the boom; the Chicano world and its reality; postmodernism/colonialism.

Component(s):
Lecture

SPAN 662 Topics in Exile and Marginality (3 credits)

Description:
This course examines exile as an epistemological, ontological, aesthetic, linguistic and political category within the Hispanic world. Courses may concentrate on writers and/or artists in exile, political and national identity, as well as gender issues in different eras and geographical spaces. Topics may include the examination of discourses of crisis in different eras: modernization; testimonio literature; the boom; the Chicano world and its reality; postmodernism/colonialism.

Component(s):
Lecture

SPAN 663 Topics in Exile and Marginality (3 credits)

SPAN 664 Topics in Exile and Marginality (3 credits)

Description:
This course examines exile as an epistemological, ontological, aesthetic, linguistic and political category within the Hispanic world. Courses may concentrate on writers and/or artists in exile, political and national identity, as well as gender issues in different eras and geographical spaces. Topics may include the examination of discourses of crisis in different eras: modernization; testimonio literature; the boom; the Chicano world and its reality; postmodernism/colonialism.

Component(s):
Lecture

Topics in History of Ideas in the Hispanic World

SPAN 671 Topics in History of Ideas in the Hispanic World (3 credits)

Description:
This area examines the philosophical and ideological bases of artistic expression in the Hispanic world, in its European, American and Asian contexts. Topics may include the Caliban/Ariel dichotomy in Latin America, the rhetoric of independence and revolution, modernity/postmodernity. Poetic and essayistic discourses of Spain and Spanish America form the corpus for this area.

Component(s):
Lecture

Hispanic Studies MA Thesis and Research Paper Courses

SPAN 682 Research Paper I (12 credits)

Description:
Under the supervision of a faculty member, students undertake a substantial research project, to be completed by the preparation of a research paper.

Component(s):
Seminar

SPAN 683 Research Paper II (15 credits)

Description:
Under the supervision of a faculty member, students undertake a research project, to be completed by the preparation of a research paper.

Component(s):
Seminar

SPAN 694 Thesis Proposal (3 credits)

Description:
Under the supervision of a thesis supervisor, the student writes a proposal presenting a research topic, whose overall goal is to demonstrate that the student is capable of undertaking an independent research project. In the proposal, the student provides: 1) the linguistic, cultural or literary phenomenon or corpus to be studied; 2) a critical and theoretical framework for the study; and 3) a preliminary bibliography. This proposal is submitted to the thesis director and Graduate Program Director for consideration.

Component(s):
Thesis Research

SPAN 695 Thesis (24 credits)

Description:
The thesis consists of the formulation and presentation of the research results. Each thesis is examined by a committee consisting of the student's supervisor and at least two other scholars from the department and/or scholars from relevant disciplines in other departments or institutions.

Component(s):
Thesis Research

Communication Studies Courses

Communication Studies Graduate Diploma Courses

Communication Studies Graduate Diploma Core Courses (Group A)

COMS 505 Introduction to Communication Theory and History (3 credits)

Description:
This seminar offers an introduction to communication theory, by situating media theories and technology in their historical and cultural contexts. Through lectures, discussions, and selected readings from the works of key theorists, this course explores and evaluates major historical and contemporary approaches to communication theories.

Component(s):
Lecture

COMS 506 In the Field: Methods in Communication Studies and Practice (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMS 505.

Description:
This course offers an introduction to communication research methods and provides an interdisciplinary approach to the interaction of media, technology, culture, and society.

Component(s):
Seminar

COMS 510 Graduate Diploma Seminar (3 credits)

Description:
This full-year course meets bi-weekly to introduce students to the following topics: communication organizations and their public identities, internships and professional development opportunities, emerging trends in communications research methods and practice. Representatives from industry and faculty are invited to discuss their work and future trends in media studies and practice.

Component(s):
Seminar

Notes:

- This course is graded on a pass/fail basis.

COMS 562 Media Production: Sound (3 credits)

Description:
This course is designed to provide the student with a basic working knowledge of audio systems, both natural and electronic, to understand the various affective and psychological qualities of sound, and how sound may be structured into imaginative aural form. Lectures and Laboratory: average 6 hours per week.

Component(s):
Seminar

COMS 569 Media Production: Moving Images (3 credits)

Description:
This course provides a foundation in the creative, critical and technical aspects of moving images, including an introduction to non-linear editing software.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for COMS 567 (Television) or COMS 568 (Film) may not take this course for credit.

COMS 570 Media Production: Intermedia (3 credits)

Description:
This course provides an introduction to new and developing digital technologies (primarily computer-based media) through historical, theoretical, and critical perspectives on media, culture, and society and includes basic concepts in software operating systems, communication design and digital media creation. Lectures and Laboratory: average 6 hours per week.

Component(s):
Lecture; Laboratory

Communication Studies Graduate Diploma Elective Courses (Group B)

A selection from the following courses will be offered. Information about the particular offerings in a given year is available from the Department.

COMS 507 Advanced Scriptwriting for Media (3 credits)

Prerequisite/Corequisite:

Students must submit of a sample of creative writing by June 30,to be approval by the instructor prior to enrolling.

Description:
This course provides an in-depth approach to writing for specific media. Emphasis is placed upon structure, story-telling, research, and the interplay of character and action. Different paradigms for both fiction and non-fiction are considered.

Component(s):
Seminar

COMS 512 Discourses of Dissent (3 credits)

Description:
This course examines the forms and tactics of public discourses directed toward social change. Forms of public discourse that may be considered include speech, images, audiovisual works, as well as web-based sites or forms of communication. Emphasis is placed upon political protest, conflict and controversy, and mobilization. Themes explored include the development of speaking positions, the use of unconventional tactics, and the appropriation or rejection of received values.

Component(s):
Seminar

COMS 513 Cultures of Production (3 credits)

Description:
Drawing on a range of recent field studies exploring the creative workplace (e.g. television production, the fashion industry, ad agencies, graphic design companies, the music business), this course frames commercial cultural production as a site of active agency, negotiation, and constraint through readings, discussion, and the design and execution of field research projects.

Component(s):
Seminar

COMS 514 Production Administration (3 credits)

Description:
This course focuses on the language, skills and strategies necessary for producing media projects and events. Administration, organization, permits and permissions, fundraising, liability and contracts, team building, distribution and writing are just a few of the areas that are examined as students learn the skills necessary to be a producer.

Component(s):
Seminar

COMS 516 Advanced Topics in Documentary Film and Video (3 credits)

Description:
This course provides an in-depth study of selected film and video documentary genres. Specific topics for this course will be stated in the Class Schedule.

Component(s):
Seminar

COMS 518 Cultures of Globalization (3 credits)

Description:
This course examines the significance of communication technologies to the process of globalization, which has increased and accelerated the movement of people and commodities across the world. The resulting transnational networks of cultural, economic, political, and social linkages and alliances are considered, as is the role of media in engendering new forms of community and identity.

Component(s):
Seminar

COMS 519 Communications and Indigenous Peoples (3 credits)

Description:
Focusing on Canadian First Peoples territories in the North and South, as well as selected circumpolar regions, such as parts of Australia and other areas of the world inhabited by indigenous peoples, this course examines from a global perspective the historical, theoretical, and cross-cultural content and contexts of aboriginal media and financing, audience research, product development, distribution issues, and policy formation. Broadcasting, print, and digital media case studies and materials are central components.

Component(s):
Seminar

COMS 521 Communication Technologies and Gender (3 credits)

Description:
Feminist theories of communication technologies are used to critique the impact and meanings of these technologies in various spheres of cultural activity. Topics include the mass media, technological mediations in organizations and institutions, and the re-articulation of domestic and public spaces, such as the Internet and the World Wide Web. Special attention is paid to these electronic and digital technologies - or new media - and the communicational and representational possibilities they enable or foreclose. The class is conducted as an intensive seminar. Completion of a prior course in women’s studies or gender studies at the university level is recommended.

Component(s):
Seminar

COMS 522 Perspectives on the Information Society (3 credits)

Description:
This course critically examines the political, social, and ethical dimensions of the information society within Canada and throughout the world. The development of the information society is placed in a socio-historical context. The significance of information and communication technologies is considered and the role of global information and communication policies is examined.

Component(s):
Seminar

COMS 523 Media Art and Aesthetics (3 credits)

Description:
This course examines the aesthetic principles pertinent to the analysis and creation of works within communication media. Topics may include the field of perception, the role of cognition, the elements of composition, and the interplay of form and meaning. Both the static and dynamic aspects of visual and aural elements are considered.

Component(s):
Seminar

COMS 524 Alternative Media (3 credits)

Description:
This course examines various alternatives to mainstream media. These alternatives may include community radio and video, independent film, the internet, and other emergent cultural forms such as the pastiche and parody of “culture jamming”. The concepts of mainstream and alternative are explored and the relationship between alternative media and social practices is considered.

Component(s):
Seminar

COMS 525 Media Forecast (3 credits)

Description:
This course examines trends in film, sound, television, and other media for future applications. The course includes theory of media effects. Representatives from industry and government are invited to discuss future trends in media utilization. The course demands a theoretical and practical model for original or novel use of a medium or media mix.

Component(s):
Lecture

COMS 532 Communication, Culture and Popular Art (3 credits)

Description:
This course offers an advanced examination of popular culture. With attention to such phenomena as hit films and television shows, stars, fans and pop art, this course focuses on the formation of hierarchies of value in cultural forms. This course examines how some cultural products come to be celebrated while others are dismissed. It also considers social and political consequences of divisions of high and low culture.

Component(s):
Seminar

COMS 533 Semiotics (3 credits)

Description:
This course provides a detailed introduction to the semiotics of communication. The course considers the formal characteristics of signs and codes and examines how signs or texts produce meaning. Central to this course is the notion that sign-systems are fundamental to the production of knowledge and ideology. The course proceeds through lectures, an analytical reading of assigned texts, and student discussion and presentations.

Component(s):
Seminar

COMS 534 Advanced Topics in Film Studies (3 credits)

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under COMS 517 may not take this course for credit.

COMS 535 Communications, Development and Colonialism (3 credits)

Description:
This course discusses the role media can play in indigenous and international development. The concept of development communications is examined in the context of debates within neo-colonial and post-colonial theories.

Component(s):
Lecture

COMS 537 Race, Ethnicity and Media (3 credits)

Description:
This course addresses practical and theoretical issues of race and ethnicity that have become focal points for current debates in public cultural expression and media studies. The following themes are discussed: cultural/racial difference and its implications for media studies; the (mis)representation of multicultural and multiracial minorities in mainstream and alternative media; questions of access to arts and other cultural funding sources; implications of employment equity legislation in light of media budget cuts; and cross-cultural awareness programs vs. anti-racist training for media professionals. Theoretical readings which frame issues of cultural and racial representation are an integral part of this course.

Component(s):
Seminar

COMS 538 Organizational Communication (3 credits)

Description:
This course considers major approaches to organizational communication in relation to shifting patterns of power, inequality and technological change. Topics include communication networks, organization culture, bureaucracy, systematically distorted communication, gendered communication, the impact of new communication technologies, and patterns of organizational dominance and resistance. Case studies of particular organizations are examined.

Component(s):
Seminar

COMS 539 Political Communication (3 credits)

Description:
The relationships between forms of communication and political structures and processes are examined. Topics include freedom of expression, the role of communication in mediating conflict, the place of deliberation and debate in democracy, political campaigns and advertising, and the relationship between styles of communication and models of governance.

Component(s):
Seminar

COMS 540 Acoustic Communication and Design (3 credits)

Description:
This course investigates contemporary theories of acoustic communication and design, such as Attali’s concept of noise, Schaeffer’s theory of the sound object, Schafer’s concept of soundscape, Chion’s cinema for the ear, and Augoyard’s repertoire of sound effects. Students engage in critical analysis of selected sound texts from various media.

Component(s):
Seminar

COMS 541 Sexuality and Public Discourse (3 credits)

Description:
This course analyzes and explores the ways sexuality circulates in, and as, public discourses. Through a variety of conceptual formations and critical conceptualizations of ‘the public’ and ‘sexuality’, this course analyzes conceptually and critically how sexuality and the notion of the public are mutually constitutive. The seminar is interdisciplinary and draws upon works in feminist studies, queer theory, political philosophy, history, cultural studies and communication theory.

Component(s):
Seminar

COMS 542 Advanced Topics in the Photographic Image (3 credits)

Description:
This course explores the themes and concerns associated with particular photographic practices. Through class discussion, visual materials, readings and writing projects, students develop a critical understanding of the history, language and aesthetics of the photographic image.

Component(s):
Seminar

COMS 543 Film Criticism (3 credits)

Description:
This course provides an introduction to the assumptions, methodologies, and vocabularies implicit in important schools of popular and academic film criticism.

Component(s):
Seminar

COMS 544 Reception Studies (3 credits)

Description:
This course examines recent theory and research trends in the area of media reception studies and audience agency. Topics may include discursive, institutional, observational and ethnographic approaches through readings, discussion, and the design and execution of field research projects.

Component(s):

Lecture

COMS 545 Television Studies (3 credits)

Description:
This course examines recent research focusing on television. Topics may include technological and industrial changes, audience activity, new genres, and representational conventions.

Component(s):
Lecture

COMS 546 Rhetoric and Communication (3 credits)

Description:
This course focuses upon communication as persuasive or as producing identification. Emphasis is placed upon the role of communication in civic affairs. Classical and contemporary approaches to rhetorical theory and criticism are examined.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under a COMS 530 number may not take this course for credit.

COMS 547 International Communication (3 credits)

Description:
This course explores historical and current parameters of international communications within the context of current global shifts in power/knowledge relations. Discussion topics are selected from among the following: key development and neo-colonial theories, cultural/media imperialism, globalization, the UN infrastructure, the Right to Communicate debates, national sovereignty issues, international broadcasting, cross-cultural audience reception research and effects theories, telediplomacy, the World Wide Web and the Internet, women as an international constituency group, and others.

Component(s):
Lecture

COMS 548 Media Policy in Canada (3 credits)

Description:
This course acquaints the student with the historical development of media policy in Canada. It examines the government regulation of media as well as the strategies that have been put in place to foster and guide the development of media and cultural industries. It also

considers the present state of broadcasting, telecommunications and internet policies in Canada, focusing on current problems and exploring alternative solutions.

Component(s):
Lecture

COMS 553 Communication Ethics (3 credits)

Description:
This course allows students to confront issues of creative responsibility and ethical dilemmas in media practice. Emphasis is placed upon the relationship between production and theory at the level of ethical responsibility. Specific issues include ethical theories as applied to media, communication and information; the relationship of human values and technologies of information reproduction; the possibilities of critical media practice; identification of challenges emerging from experience in Communication Studies.

Component(s):
Seminar

COMS 561 Communicative Performances and Interventions (3 credits)

Description:
This course examines how media can be used in order to intervene in social and cultural issues. Emphasis is placed on the performative character of interventions: they occur at a particular time and in a particular place, they are addressed to and seek to move particular audiences. Topics may include the history of performance strategies, the social and political character of aesthetic interventions, and the forms of such performances in relation to various media of communication.

Component(s):
Lecture

COMS 580 Selected Topics in Communication Studies (3 credits)

Component(s):
Seminar

COMS 583 Internship in Communication Studies (3 credits)

Prerequisite/Corequisite:
Permission of the Graduate Program Director is required.

Description:
This course makes it possible for students to observe, study and work in the communications media field of their choice under the supervision of a Communication Studies faculty member and a media professional in the field.

Component(s):
Tutorial

Notes:

- There is no remuneration for students participating in internships, which involve 120 hours on site.

COMS 585 Directed Study in Communication Studies (3 credits)

Description:
Students may enrol in a directed study under faculty supervision in order to undertake a specialized study of research-related topics. Permission of the Graduate Program Director is required.

Component(s):
Tutorial

Notes:

- This course may be repeated as COMS 586.

COMS 586 Directed Study in Communication Studies (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMS 585. Permission of the Graduate Program Director is required.

Description:
Students may enrol in a directed study under faculty supervision in order to undertake a specialized study of research-related topics.

Component(s):
Tutorial

COMS 598 Advanced Topics in Communication Studies (3 credits)

Component(s):
Seminar

Media Studies MA Courses

COMS 600 Communication Theory (3 credits)

Description:
This seminar studies and evaluates the major historical and contemporary approaches to communication theory. The following approaches are covered: Processes and Effects, Functionalism; Symbolism and Cultural Studies; Institutional Studies and Political Economy.

Component(s):
Seminar

COMS 605 Media Research Methods I (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: COMS 600.

Description:
This seminar prepares students to critique literature from any of the major research traditions; to make basic connections between epistemology and problems of basic communication research; to be able to identify the research method most appropriate to personal areas of interest; to design a basic research project.

Component(s):
Seminar

COMS 606 Media Research Practicum (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: COMS 605. Permission of the Graduate Program Director is required.

Description:
This course is an individual research practicum offered on a tutorial basis under faculty supervision. It may be used to develop advanced skills in a particular media research methodology. For students enrolled in the research-creation thesis or thesis options, this course is used to develop the analytic or creative research program necessary to accomplish the thesis.

Component(s):
Tutorial

COMS 608 History of Media (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: COMS 600.

Description:
This seminar examines the development of communications technology and the media in a comparative and historical perspective. Topics include the transition from orality to literacy, the print revolution, the rise of new image technologies and the mass press in the

nineteenth century, electronic media and the modern nation-state, global information, and the emergence of a world media system.

Component(s):
Seminar

COMS 610 Media Studies Seminar (3 credits)

Description:
This full-year course meets monthly to introduce students to issues of professionalization, careers in Media Studies research and practice, applying for funding, publication and dissemination of research, and presentations of ongoing faculty research and research-creation. An annual December colloquium for the presentation of second-year thesis and research-creation work is held. Required for first-year students, and recommended for continuing students.

Component(s):
Seminar

COMS 614 News and Public Affairs (3 credits)

Description:
This seminar examines the principles and discourses of news and public affairs media. The truth-value of news and public affairs programming is considered in the light of selectivity of reporting, changes in news formats, and the emergence of “infotainment.” Topics may include institutional structures, organizational routines, ideologies, and norms of representation that influence the construction of the news.

Component(s):
Seminar

Notes:

- Students who have received credit for COMS 611, 612 or 655 may not take this course for credit.

COMS 622 Media Law (3 credits)

Description:
This seminar examines legislation relevant to the creation and distribution of media products. Topics may include copyright, libel, freedom of expression and censorship, privacy and contracts.

Component(s):
Seminar

COMS 624 Media Management (3 credits)

Description:
The course is designed to provide participants with a practical and theoretical understanding of such aspects of management in the media enterprise as: leadership styles; goal setting; strategic planning; labour relations; ethics; budget control; communications consulting; and effectiveness evaluation. During the course, participants examine various practices and problems in media management. The course begins with an analysis of management theory and relates to media institutions organizations. In addition, the program provides for advanced study of the social and cultural implications of communications and informations media, and of the analysis of the theory and professional practices of mass media institutions.

Component(s):
Seminar

COMS 627 Political Economy of Communication (3 credits)

Description:
This seminar focuses on issues and problems related to media and cultural industries. Special attention is given to the production and distribution of cultural commodities. Topics for examination include the question of media ownership, the role of state agencies in media systems, and the economics of media institutions.

Component(s):
Seminar

Notes:

- Students who have received credit for COMS 626 may not take this course for credit.

COMS 628 Organizational Communication (3 credits)

Description:
This seminar considers major approaches to organizational communication, particularly as they relate to media enterprises. Various paradigms are considered both as theoretical frames and as forms of social practice that have emerged in relation to shifting patterns of power, inequality, and technological change. Topics may include communication networks, organizational culture, the nature of bureaucracy, systematically distorted communication, gendered communication, the impact of new communication technologies, and patterns of organizational domination and resistance.

Component(s):
Seminar

COMS 630 Communication, Development, and Colonialism (3 credits)

Description:
This seminar focuses on theoretical, and political issues related to interpersonal and mediated communication in developing areas. Topics may include: the forms of colonialism (neo- and post-) cultural domination, participatory development, women and minority constituency groups, sustainable development, and globalization.

Component(s):
Seminar

COMS 632 Media and Contemporary Culture (3 credits)

Description:
This seminar investigates the influence of contemporary media systems on cultural values. Special attention is given to the question of consumption of popular culture and to recent developments in cultural theory. Topics may include: media constructions of nation and identity, media consumption patterns, political culture, popular and entertainment culture.

Component(s):
Seminar

COMS 634 International Communication (3 credits)

Description:
This course explores the manner in which culture, ethnicity and other factors interact and are transformed through the international flow of information, images, and technologies. The international relationship between media, communication institutions, and constituency groups is considered. Topics may include: the analysis of genres and images, issues of cultural and media imperialism, the global information infrastructure; national sovereignty perspectives, and international broadcasting.

Component(s):
Seminar

COMS 635 Feminist Theory and Media (3 credits)

Description:
This seminar examines concepts and principles from feminist theory in relation to the study of media and communication. Topics may include: theories of gender, sex and sexuality, psychoanalytic theory, materialist cultures, bodies and geographies, technologies, and visual cultures.

Component(s):
Seminar

Notes:

- Students who have received credit for COMS 642A may not take this course for credit.

COMS 636 Ethics and Media (3 credits)

Description:

This seminar examines concepts and principles from ethical theory in relation to the study of media and communication. Possible topics include the ethical implications of media practices, the responsibility of media producers and audiences, the relationship of ethics to the pragmatics of communication, ethics and ethos, and the ethical implications of technology.

Component(s):
Seminar

Notes:

- Students who have received credit for COMS 620 may not take this course for credit.

COMS 640 Directed Study (3 credits)

Prerequisite/Corequisite:
Permission of the Graduate Program Director is required.

Description:
Students may enrol in a directed study under faculty supervision in order to undertake a specialized study of theoretical or research-related topics.

Component(s):
Tutorial

COMS 642 Special Topics in Media Studies (3 credits)

Description:
This seminar permits the in-depth examination of particular special topics in media and communication. Topics vary from year to year.

Component(s):
Seminar

COMS 644 Media Policy (3 credits)

Description:
This seminar studies particular sectors of media policy and regulation in Canada. The policy sector under discussion may change from year to year and both historical and contemporary issues are examined. Topics may include: broadcasting, film, satellite and cable distribution, multiculturalism, northern and remote access, telecommunications, and the internet.

Component(s):
Seminar

COMS 646 Alternative Media (3 credits)

Description:
This seminar explores various alternative and resistant practices to mainstream media, including community radio and television, artists and community video, independent film, underground/pirate media, the internet, and other emergent cultural forms. Topics may include: practices and theories of the alternative, methods of critical analysis, media

Component(s):
Seminar

COMS 652 The Canadian Documentary (3 credits)

Description:
This course examines non-fiction film, television and other media in Canada. Materials considered may include the documentary work of the National Film Board, independent film and video, and television docu-drama. These are examined from a variety of perspectives such as history, form and textuality, institutional analysis, and culture.

Component(s):
Lecture; Seminar

COMS 656 Forms and Genres in Communication (3 credits)

Description:
This seminar examines specific patterns in cultural forms and texts. Attention is paid to the production, consumption, and textual attributes of genres. Topics vary from year to year, and may include a focus on advertising, public advocacy, documentary, popular music, situation comedy, or feminist feature film.

Component(s):
Seminar

COMS 660 Definitions and Futures of Media and Technology (3 credits)

Description:
This seminar explores the social, cultural, and psychological aspects of media and technology. Media are considered as both containers and expressions of culture. In addition, this seminar focuses on the impacts of new technologies and media. Topics may include the interaction of media and culture, the role of technology in the development of human consciousness and values, and the future of media in the light of emergent technologies and practices.

Component(s):
Seminar

Notes:

- Students who have received credit for COMS 643 or COMS 658 may not take this course for credit.

COMS 662 Theories of Representation and Interpretation in Communication (3 credits)

Description:
This course examines discourse and media texts as forms of representation. Representation is considered in terms of both figure and argument. The course also presents theoretically-informed approaches to the interpretation and criticism of discourses and media texts. Possible theoretical approaches include rhetoric, semiotics, hermeneutics, and speech-act theory.

Component(s):
Seminar

COMS 670 Directed Study (3 credits)

Prerequisite/Corequisite:
Permission of the Graduate Program Director is required.

Description:
Students may enrol in a directed study under faculty supervision in order to undertake a specialized study of theoretical or research-related topics. Permission of the Graduate Program Director is required.

Component(s):
Tutorial

COMS 680 Aesthetics and Media (3 credits)

Description:
This seminar examines concepts and principles from aesthetic theory in relation to the study of media and communication. In addition to considering general aesthetic principles, the course may focus on particular aural or visual media. Topics may include the relationship of medium to aesthetic form, aesthetics and reception theory, aesthetics and ideology, the mass reproduction and distribution of aesthetic objects, and the aesthetics of new media.

Component(s):
Seminar

COMS 684 Media Research Laboratory (3 credits)

Description:
This production-based seminar explores the intersections of analog, electronic and digital media with a special emphasis on their

convergence. Topics may include digital imaging, multimedia information design and programming, three dimensional media, virtual reality, world-wide-web, hypertext and hypermedia publishing.

Component(s):
Seminar

COMS 694 Thesis/Research-Creation Thesis Proposal (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: COMS 600; COMS 605; COMS 610; plus 12 elective credits.

Description:
Under the direction of a supervisor, the thesis or research-creation thesis topic and research plan are put into a formal proposal and submitted to a proposal committee and the Graduate Program Director for approval. Proposals must be defended by the end of the third term for students to continue in either the Thesis or Research-Creation Thesis option.

Component(s):
Thesis Research

COMS 695 Thesis (21 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMS 694.

Description:
The thesis is researched and written in the Fall and Winter of the second year of study. It is submitted in written form and is between 20,000 and 25,000 words in length. The thesis format must be commensurate with Graduate Studies regulations and in a format stipulated by the rules of the Thesis Office. The thesis submission normally follows the graduate academic calendar dates. The thesis is defended in an oral examination.

Component(s):
Thesis Research

COMS 697 Research-Creation Thesis (21 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMS 694.

Description:
Specifically designed for students with significant media production experience. During the Fall and Winter of the second year of study, students choosing Option III undertake a Research-Creation Thesis that deploys one or more media forms. The Research-Creation Thesis is comprised of an original media production or prototype in any genre, and a 10,000 word document comprising a literature and media review, a theoretical and methodological contextualization, a critical reflection on the research-creation and its outcomes, and other areas of analysis as deemed necessary by the student and the student's Thesis Committee. The thesis

submission normally follows the graduate academic calendar dates. The thesis is defended in an oral examination.

Component(s):
Thesis Research

COMS 698 Major Research Paper (15 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: COMS 600; COMS 605; COMS 610; plus 21 elective credits. This course is available only to those registered in Option IV, is normally taken in term five, and may not be taken concurrently with other courses.

Description:
The Major Research Paper is an extended essay/project equivalent to 10,000 words on a topic chosen in consultation with a full-time faculty member. The Major Research Paper may commence from topics and materials from previous courses, it may involve a sustained literature review of a specific issue or problem, or it may be a thematic investigation of a topic pertaining to media or communication studies. With permission of the supervisor and the Graduate Program Director, the Major Research Paper may include a research-creation component.

Component(s):
Research

Notes:

- Students who have received credit for COMS 695 or COMS 697 may not take this course for credit.

Communication Studies PhD Courses

Core Courses

COMS 800 Integrative Seminar (3 credits)

Description:
This course proposes to engage first-year students in an epistemological conversation concerning different approaches to the conceptualization of communication and to the range of research problematics elaborated in the field and in the program. The expected outcomes include: a broad understanding of the relations between different domains within the discipline; the ability to recognize the links between epistemological assumptions, theory construction, the formation of research problematics and methodological approaches; a familiarization with the main fields of strength within the program; and the development of the ability to engage in dialogue with colleagues in different domains of research.

Component(s):
Lecture

COMS 835 Doctoral Pro-Seminar (3 credits)

Prerequisite/Corequisite:
It is compulsory to finish the COMS 815 Doctoral Examination before registering in the Doctoral Pro-Seminar.

Description:
In order to promote the growth of an intellectual community within the program, Communication Studies PhD students are required to register in the theory and research pro-seminar known as the Doctoral Pro-Seminar. Students registered in this seminar engage in research design by workshopping their thesis proposals through iterative presentations with seminar participants, and through multiple written drafts. Students are then required to present a first draft of their thesis proposal.

Component(s):
Seminar

Notes:

- Students typically register in the Doctoral Pro-Seminar in Year 2 of their studies.
- Students who have received credit for COMS 830 may not take this course for credit.

Elective Courses

COMS 805 Research Workshop (3 credits)

Description:
This research workshop is supervised by the student's thesis director and is intended to respond to a particular need unfulfilled by the program. It can take various forms, namely a directed readings program, a specific project within a research group, an elective course (including a masters level course) or a research or creation internship. The research workshop must be defined in a specific agreement between the thesis supervisor and the student, which is approved by the program director and added to the student's file.

Component(s):
Tutorial

Notes:

- Students who have received credit for this topic under a COMS 805 number may not take this course for credit.

COMS 822 Advanced Seminar in Research Methods I (3 credits)

Description:
This course provides an in-depth analysis of methodological problematics. Major contemporary methods of analysis are considered. Possible themes include research design, data-gathering techniques and instruments, and qualitative or quantitative procedures for data analysis. Specific topics may vary from year to year.

Component(s):
Lecture

COMS 823 Advanced Seminar in Research Methods II (3 credits)

Component(s):
Lecture

Notes:

- Topics vary and are determined by the Joint Program Committee.

COMS 841 Cultural Industries (3 credits)

Description:
This course examines commodification and industrialization processes as well as the dissemination and consumption of culture within contemporary social formations, while focusing on one or more sectors of the cultural industries. The analytical approach considers themes such as characteristics of merchandising cycles, work and market organization, symbolic and cultural specificity of cultural-industries products, and relationships between technological innovation and cultural form.

Component(s):
Lecture

COMS 842 Media Reception (3 credits)

Description:
This course examines media reception. It explores different theoretical and methodological approaches to the study of individual group practices and cultural consumption. The course looks at case-study material drawn from specific media or media genres (e.g. popular music, soap operas, children's programming). The seminar considers such approaches as media ethnography, focus-group research, audience research, life histories, and other context specific micro-social approaches.

Component(s):
Lecture

COMS 843 Communication Policy (3 credits)

Description:
This course examines the history and development of state intervention and regulation of the media. It may focus on communication policy nationally or internationally. The course considers such issues as the role of public policy in the development of public media and the public sphere, models of regulation and deregulation, the relations between regulatory agencies and interest groups, and the position of communication policies within larger governmental structures.

Component(s):
Seminar

COMS 844 Uses of Information and Communication Technologies (ICTs) (3 credits)

Description:
Observing usage of information and communication objects and technical devices allows us to understand the effect of technologies within society. This course explores different theoretical and methodological approaches pertinent to analyzing ICT usages. With respect to course discussions and papers, particular attention may be paid to the interaction between user and technical device; articulation between artifact user and creator; usage situation within the organizational context; embedding of political dimensions in technological design; usage micro-situations and macro-sociological issues. Some major research traditions may be introduced, namely, dissemination of artifacts, sociotechnical innovation, common practices and significations, pragmatic approaches, social and socio-political appropriation of usages.

Component(s):
Seminar

COMS 851 Speech Communication (3 credits)

Description:
This course examines discourse as action. Forms of discourse considered may range from interpersonal communication to public address. Possible theoretical approaches include ethnomethodology, conversational analysis, rhetorical theory, and performance studies.

Component(s):
Seminar

COMS 853 Discourse and Representation (3 credits)

Description:
The course examines discourse with respect to representation. It focuses on the structuring of knowledge and identity within sign systems. Emphasis may range from the cognitive and psychological to the social and cultural.

Component(s):
Lecture

COMS 854 Discourse within Social Formations (3 credits)

Description:
This course examines discourse as social mediation. Possible themes include the interrelation of power and knowledge, the organization of culture through signifying practices, and the production of discourse and social institutions.

Component(s):
Lecture

COMS 861 Organizational Culture (3 credits)

Description:
This course examines how cultural analysis can be brought to bear in understanding organizational life. To this end, a range of theoretical approaches are drawn upon, including conversational analysis, ethnography, ethnomethodology, symbolic interactionism, enactment theory, and socio-linguistics. Aspects of organizations such as norms, rituals, folklore, traditions, common ideals, ideologies, shared symbols, core values and interaction are given particular attention.

Component(s):
Seminar

COMS 864 Communication and Change in Organizations (3 credits)

Description:
This course addresses a major question within organizations at both theoretical and practical levels. It focuses on issues of innovation or transformation in an organizational framework using various approaches (functionalist, critical, post-modern, constructivist, interpretative). This perspective is pertinent for analyzing the context and process of change within cultural or development organizations as well as private, public or charitable undertakings.

Component(s):
Lecture

COMS 873 Identities and Cultural Exchange (3 credits)

Description:
Within the context of electronic, information, and market-globalization forces, traditional geopolitical borders have become porous and easily penetrable. This course focuses on the hybrid identities emergent and negotiated from cross-cultural engagements and transnational communication at the beginning of the 21st century. Curricular materials include theoretical readings, case studies, and audiovisual materials focused on bridging cultural and political gaps.

Component(s):
Lecture

COMS 874 Globalization of Communication (3 credits)

Description:
This course examines the emergence of a global communication system. Possible topics include international information flow, the circulation of communication products and communication issues as they are reflected in international accords and debates, and the role of media in issues of cultural development, democratization, and resistance to globalization.

Component(s):
Lecture

COMS 875 Technology and Organization (3 credits)

Description:
This course analyzes and critiques various theoretical approaches which account for the relationship between technology and organization. It also provides the grounds for a communicational reflection on phenomena associated with the presence of information and communication technologies within organizations.

Component(s):
Lecture

COMS 876 Media Technology as Practice (3 credits)

Description:
This course examines relationships between theory and practice in the work of individuals and groups of media practitioners across a range of genres and working contexts. Analysis can focus on the organization of the workplace, the creative process and social forces influencing media praxis.

Component(s):
Lecture

COMS 877 International Communication and Development (3 credits)

Description:
This course traces the history of the different paradigms related to communication and development. It proposes a critical analysis of the theoretical perspectives suggested in both Southern and Northern contexts. The topics considered include Canadian and foreign institutions, policies, and programs, the role of international fora, as well as globalization and development. Case studies may focus on a specific region of the world.

Component(s):
Lecture

COMS 878 Communication, Conflict and Peace (3 credits)

Description:
This course examines the various ways in which discourses of war, conflict, and peace are constructed and relayed through the mass media and other forms of technologically-mediated communication. In particular, how do the inherent properties of different modes of communication intersect with larger discursive formations to reproduce dominant definitions and unquestioned categories of social knowledge related to issues of peace and conflict? What role do the media play in shaping our understanding of war and warfare? How does the internet contribute to promoting both conflict and peace? How is peace represented as an end state that is desirable; for whom is peace being constructed; and what are the kinds of actions being promoted or encouraged in the name of peace?

Component(s):
Lecture

COMS 879 Human-Computer Interactions (3 credits)

Description:
This seminar examines human-computer interaction models and research in various fields of media communication; virtual worlds, e-commerce, distance education, sharing of knowledge and resources, adaptive technologies, systems intelligence and customization. Other topics include principles of interface design and assessment in cognitive ergonomics.

Component(s):
Lecture

COMS 880 Communication Networks and Organization (3 credits)

Description:
This course examines and analyzes communication networks in a constructivist perspective with respect to two main “social-networks” traditions (anthropological and structural). It considers communication networks according to the themes explored by scholars in the field such as diffusion, social support and capital, organizational phenomena, social movements or ICTs. The seminar also includes methodological aspects of the study of communication networks, their emergence, and their transformation.

Component(s):
Lecture

COMS 882 Communication, Democracy and Power (3 credits)

Description:
This course considers the communicative structure and performance of democracy within modern society. Attention is paid to the discursive resources available to perform and affect democracy, the constitution of democratic agents, the role of media in constituting and maintaining a public sphere, communicative strategies, norms of regulation and power, the performance of difference and various aspects of public culture.

Component(s):
Lecture

COMS 883 History and Historiography of Media and Culture (3 credits)

Description:
This course examines the development of communication technologies and the media in comparative and historical perspective. Themes of time, space, place and power and their reconfiguration in relation to media and communication are given particular attention. Class members are encouraged to think about how they might engage in research on the history of media as part of their dissertation projects. To this end, historiographical issues are examined throughout the course, along with methodological consideration given to how one works with documentary and archival records.

Component(s):
Lecture

COMS 884 Cultural Theory in Communication Studies (3 credits)

Description:
This course introduces students to cultural studies and its entwinement with the development of the field of communications. Key readings in Marxist approaches to culture, British Cultural Studies, and its US and Canadian variants are covered in the first half of the course. The remaining weeks expand the national and conceptual specificity of the “cultural studies tradition.” Topics include cultural and representational politics, issues of identity, resistance, hegemony, and ideology.

Component(s):
Lecture

COMS 885 Popular Culture (3 credits)

Description:
This course focuses upon the political dimension of popular culture and the intellectual challenges it poses to scholarship. It concentrates upon the conceptual and historical aspects of the study of popular-cultural forms, their production and consumption, as well as their assessment. The course introduces key ideas and issues in popular-cultural studies, beginning with the rise of interest in mass culture during the late-19th and early-20th centuries. It also encounters modes of examining and understanding popular texts and sites of popular consumption. Issues of subjectivity, community, ideology, cultural hierarchies, and mass society are addressed.

Component(s):
Seminar

COMS 886 Alternative Media (3 credits)

Description:
This course examines the array of alternative communication practices that inform social movements emerging from the margins. It focuses on the conditions of their effectiveness and mechanisms that facilitate or impede their success, such as the external social forces that influence their cooptation, commodification and evacuation of revolutionary potential.

Component(s):
Lecture

COMS 887 Strategies and Styles in Communication (3 credits)

Description:
This course considers the strategies and styles of communication as intentional symbolic activity. Communication is examined as a practice that responds to and transforms situations and contexts. Emphasis is placed on the form, manner, and consequences of such practices, as well as on the major paradigms informing different approaches to the study of discourse and mediated messages.

Component(s):
Lecture

COMS 888 Discourses of the Body (3 credits)

Description:
Critical theorists have identified the body as a site of competing and multiple discourses. The course examines some of the ways in which different bodies have been constructed in the media and how these both constrain and provide latitude for the expression of identities. A central area of inquiry is the context of the historical and contemporary terrain that informs the expression and categorization of these identities.

Component(s):
Lecture

COMS 889 Theories of Organizational Communication (3 credits)

Description:
This course surveys and juxtaposes how some of the main approaches to organizational studies have dealt with issues related to communication. Paradigms considered may include scientific management, human relations, cybernetics, political economy, rational decision making, cultural studies, feminism, and post-modernism. An effort is made to examine how these various approaches emerged historically in relation to shifting patterns of power, inequality, and technological change. Issues such as the nature of bureaucracy, domination and resistance, systematically distorted communication, and public relations/external communication are addressed.

Component(s):
Lecture

COMS 891 Communication Technologies and Society (3 credits)

Description:
This course introduces students to and contextualizes the main paradigms with respect to research on social, economic and cultural

aspects of information and communication technologies. Critical analysis focuses on their epistemological assumptions and premises, main categories of analysis, and privileged issues. Attention is paid to the political economy of the information system.

Component(s):
Lecture

COMS 892 Epistemology and Methodology of Media Creation (3 credits)

Description:
: This seminar seeks to develop a position of poiesis (production) and to differentiate it from the position of aisthesis (reception). In order to define the multiple aspects of media creation, the following themes are discussed: creationistic accounts and theses; the spectacle as ritual, achievement and imitation of reality; agents, machines and living organisms; functions of transmitting information and storytelling. Operational concepts considered may include granularity, linearity, interactivity, diegesis, spatialization, indexicalization and enunciation.

Component(s):
Seminar

COMS 893 Advanced Seminar in Special Topics in the PhD in Communication (3 credits)

Description:
This seminar permits the in-depth examination of particular special topics in media and communication. Topics vary from year to year.

Component(s):
Lecture

Examinations and Thesis Courses

COMS 815 Doctoral Examination (3 credits)

Description:
Students must successfully pass an examination based on the student's research areas and interests. The committee for the examination is composed of three professors, including the student's supervisor. Under normal circumstances, students enrol in the Doctoral Examination in Year 2 of the program. Normally, the written portion of the examination is defended orally by no later than the end of the Fall Term in Year 2. It is also compulsory to finish the examination before completing the thesis proposal. Students who fail this examination are permitted to take it a second time in the following term. Students failing a second time are obliged to withdraw from the program. Students should consult the program regarding specific examination procedures and requirements.

Component(s):
Thesis Research

Notes:

- It is compulsory to finish the examination before registering in the COMS 835 Doctoral Pro-Seminar.

COMS 890 Doctoral Thesis Proposal (6 credits)

Prerequisite/Corequisite:
Students must have completed COMS 815 doctoral examination before registering for the thesis proposal.

Description:
In the term following the completion of course work (usually the sixth term) students should submit a thesis proposal to their thesis director. The thesis proposal should be completed within three years of the student's first enrolment. The proposal must be defended orally before a committee of three professors appointed by the program. Students must demonstrate the viability of their project and their capacity to undertake doctoral thesis research. The proposal may be accepted, returned for modifications, or rejected. The rejection of a proposal results in the student being withdrawn from the program. A student whose proposal is accepted is admitted to candidacy for the PhD.

Component(s):
Thesis Research

COMS 896 Doctoral Thesis Research (63 credits)

Description:
Thesis must be based on extensive research in primary sources, make an original contribution to knowledge, and be in an acceptable literary form. The traditional research thesis is ideally no less than 225 pages and no longer than 350 pages. It must be written in an acceptable literary form and represent a contribution to theoretical or empirical knowledge in the field of communication. Students also have the possibility to produce a research–creation thesis which is to meet the same standards of rigour as the traditional research thesis. The research-creation thesis includes a practical component of creation or innovative production in the field of media/communications or digital/computerized communications, as well as a written component of approximately 150 pages demonstrating the contribution to the advancement of knowledge in the field. A digital reproduction of the practical component must be attached to the manuscript at the time of submission.

Component(s):
Thesis Research

Notes:

- All degree requirements, including the thesis, must be completed within six years of the student's first enrolment for full-time studies and eight years for part-time studies.

Economics Courses

Economics Graduate Diploma Courses

ECON 501 Advanced Microeconomic Theory (3 credits)

Description:
This course examines selected topics in microeconomic analysis such as general equilibrium analysis, welfare economics, the theory of the firm, factor pricing, and income distribution.

Component(s):
Lecture; Tutorial

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 503 Advanced Macroeconomic Theory (3 credits)

Description:
This course examines selected topics in macroeconomic analysis such as the construction of models including the labour market, the goods market, and financial markets; the role of monetary and fiscal policies; classical, Keynesian, and post-Keynesian models.

Component(s):
Lecture; Tutorial

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 509 History of Early Economic Thought (3 credits)

Description:
This course covers the evolution of economic thought from the Greek philosophers up to (and including) Classical economics. It seeks to provide the student with an outline of the development of economic analysis in this period.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 510 History of Modern Economic Thought (3 credits)

Description:
This course covers the evolution of economic thought from the Historical School to modern controversies in economic reasoning, which includes a comparative treatment of Keynesian economics and Monetarism.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 513 Economic Growth and Fluctuations (3 credits)

Description:
This course reviews various theories explaining the causes of economic fluctuations and the determinants of economic growth. It also examines issues relevant to macroeconomic stabilization policies.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 514 Economic Development: Policy Analysis (3 credits)

Description:
This course offers an advanced treatment of selected topics related to issues in economic development. Particular emphasis is placed on models of growth and structural change, such as the two-gap model, input-output analysis, and computable general equilibrium models. Trade and industrial policies, fiscal and financial policies, as well as public-sector policies including taxation, spending, and cost-benefit analysis are also discussed.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.
- Students who have received credit for ECON 511 may not take this course for credit.

ECON 521 Econometrics I (3 credits)

Description:
This course builds on the classical linear regression model as well as introducing time series models involving both stationary and non-stationary variables. Topics may include random regressors, method of moments estimation and a variety of models involving simultaneous equations, VEC, VAR, ARCH, panel, qualitative and limited dependent variables. Students continue to build on their knowledge of data management and a statistical software package through the application of these concepts and theories.

Component(s):
Lecture; Tutorial

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 522 Econometrics II (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 521.

Description:
This course is intended for those interested in further developing their knowledge of econometrics and/or those contemplating pursuing graduate studies in economics. It re-examines the properties, assumptions and interpretation of the classical linear regression model and the maximum likelihood model through the use of matrix algebra. Students continue to build on their knowledge of data management and a statistical software package through the application of these concepts and theories.

Component(s):
Lecture

ECON 523 Topics in Applied Econometrics (3 credits)

Description:
This course focuses on the development of skills in the analysis of both time-series and cross-sectional data. Time-series topics may include univariate stationary time series models, forecasting, unit-root theory, trend-stationarity, and testing and applications. Cross-sectional topics may include logit, probit and linear probability models. Students may also analyze large-survey microdata.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 525 Mathematics for Advanced Study in Economics (3 credits)

Description:
This course gives students the requisite mathematical background for graduate studies in economics. Topics include algebraic methods, and static and dynamic optimization techniques needed for the study of economic theory and econometrics. Difference and differential equations are also examined.

Component(s):
Lecture; Tutorial

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 530 Transportation Economics (3 credits)

Description:
This is a course in the field of applied economics, with a focus on transportation economics. Topics may include the evaluation of the economic benefits of various transportation systems, the social costs of transportation, road pricing, government participation in transportation finance and urban planning, the redistributive and other economic effects of transportation investment.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under an ECON 598 number may not take this course for credit.

ECON 532 Monetary Theory (3 credits)

Description:
This course examines the nature of the Monetarist-Keynesian controversy and gives a critical appraisal of the IS-LM-AS model. Topics covered may include the term structure of interest rates, post-Keynesian theories of money supply and demand as well as issues in macroeconomic policy theory such as transmission mechanisms, policy coordination and implementation lags, and international

constraints.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 533 Financial Economics (3 credits)

Description:
This course introduces students to the theory and practice of finance as seen from the economist's point of view. In particular, it examines the following topics: the theory of decision-making under uncertainty; the basic portfolio models, such as the Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Theory (APT); equilibrium aspects of financial markets, such as the role of arbitrage in the pricing of financial assets; the pricing of derivative securities, such as options.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.
- Students who have received credit for this topic under an ECON 598 number may not take this course for credit.

ECON 536 The Economics of Taxation (3 credits)

Description:
This course focuses on the effects of taxation on economic behaviour. Major topics considered include the excess burden of taxation in decisions to supply effort, savings and investment, the incidence of corporate taxation, and the design of commodity taxation. Among policy issues, topics such as tax evasion, and the taxation of multinational enterprises are examined.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.
- Students who have received credit for ECON 535 may not take this course for credit.

ECON 537 Economics of Public Expenditure (3 credits)

Description:
This course examines the economic consequences of public expenditure on the economy. Topics covered include public goods, externalities, the theory of welfare measurement, public investment criteria, pricing policy of public enterprises, public choice and intergovernmental fiscal relations.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.
- Students who have received credit for ECON 535 may not take this course for credit.

ECON 540 Market Design (3 credits)

Description:
This course focuses on the design and analysis of market mechanisms, which are concerned with how to construct rules for allocating resources and how to structure successful marketplaces. It draws on tools of game theory to identify why certain market rules or institutions succeed and why others fail. Topics may include matching markets, auctions, contracts, economic platforms and network effects. The main objectives of this course are to introduce students to some of the fundamental concepts and ideas in the theory of market design and to connect this theory to real-life markets and to practical aspects of market design policy.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under an ECON 598 number may not take this course for credit.

ECON 542 International Economics: Trade Theory (3 credits)

Description:
This course examines the foundations of international trade, the origins of gains from trade, factor-price equalization, tariffs, Canadian trade policy, the role of trade in development, and economic integration.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 543 International Economics: Finance (3 credits)

Description:
This course is an introduction to theory of national income determination in open economies with capital mobility. It includes analyses of balance of payments, exchange rate, and the role of monetary and fiscal policies under different exchange rate regimes. Among other issues covered are international policy coordination, optimum currency areas, and features of the international monetary system.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 550 Economic History (3 credits)

Description:
This course covers advanced topics in economic history with an emphasis on the application of economic theory to specific historical issues.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 561 Industrial Organization (3 credits)

Description:
This course examines departures from the perfect competition paradigm to analyze economic behaviour in an industrial setting. An industry consists of a number of firms which interact strategically to maximize their profits. Topics addressed include measures of market structure, theories of oligopoly, effects of potential entry, product differentiation and advertising, technological change, vertical integration, and monopoly and merger issues.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 562 The Corporate Economy (3 credits)

Description:
This course investigates the nature and behaviour of the firm. Economic rationalizations are presented for organizing production within a firm. The economic effects of various organization structures are examined. Topics addressed include team production, contractual models of the firm, principal-agent theory, tournaments, and the relationship between managers, shareholders, and the outside market.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 563 Economics of Regulation (3 credits)

Description:
This course is devoted to an examination of the economic aspects of governmental regulations. Besides a critical review of the economic theories of regulation, the spectrum of the existing regulatory network, and empirical investigations aimed at discerning cost-benefits, the course focuses on the process of regulatory reforms in all aspects of the Canadian economy.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 564 Game Theory, Information, and Economic Modelling (3 credits)

Description:
This introductory course on game theory is a collection of mathematical tools to model and analyze strategic interactions in a variety of settings, from economic and social situations to politics and international relations. The course focuses on both non-co-operative and co-operative game theoretic modelling, in particular, strategic and extensive form games, Bayesian games, and coalitional games. Students learn to solve games using the concepts of dominant strategies, Nash-equilibrium, subgame perfection, Bayesian equilibrium, and the core. Applications may include repeated games, auctions, bargaining, oligopoly games, entry deterrence, pricing strategies,

and collusion.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 565 The Economics of Professional Sport (3 credits)

Description:
This is a course in applied microeconomic theory. Various observations on the state of professional sports are explained using economic theory. Evidence of the statistical relevance of such explanations is also investigated. Issues addressed include the magnitude of the earnings of professional sports stars; the impact of free agency on competitive balance in sports leagues; the value of professional sports teams to cities, and whether such valuation justifies public subsidization of franchises or arenas.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.
- Students who have received credit for this topic under an ECON 598 number may not take this course for credit.

ECON 581 Labour Economics (3 credits)

Description:
The course deals with topics in labour economics using microeconomic concepts such as inter-temporal decision-making, uncertainty, moral hazard, adverse selection and market signalling. The following topics are covered: labour supply and demand, wage differentials, human capital theory, efficiency wages and implicit contracts.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 582 Economics of Personnel and Industrial Relations (3 credits)

Description:
The main objective of this course is to describe how modern microeconomics and modern labour economics can be used to solve practical human resource and personnel issues. These include hiring and firing practices, optimal payment and compensation structure, unions and strike behaviour.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 583 Employment, Earnings and Labour Market Policies (3 credits)

Description:
This course covers topics in labour economics from the macroeconomic perspective. The key topics include equilibrium unemployment, job search, wage determination mechanisms, labour income processes and labour mobility. The course also devotes a substantial amount of time to macroeconomic policy issues of the labour markets such as employment insurance, minimum wage and union.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 585 Health Economics (3 credits)

Description:
This course introduces students to the role of economics in health, health care, and health policy. It surveys the major topics in health economics and forms an introduction to the ongoing debate over health care policy. Topics include the economic determinants of health, the market for medical care, the market for health insurance, the role of government in health care, and health care reform.

Component(s):
Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 591 Environmental Economics (3 credits)

Description:

This course provides a survey, from the perspective of economics, of public issues regarding the use of environmental resources, ecosystems and the management of environmental quality. The course covers both conceptual and methodological topics with recent and current applications. It begins with an introduction to the theory and methods of environmental and natural resource economics and concepts of sustainable development. Then the emphasis is shifted to the optimal use of natural resources, both non-renewable resources (mineral and energy) and renewable resources, and the valuation of environmental resources. The last part of the course examines national and international environmental policy issues, including intergenerational equity and environmental ethics.

Component(s):

Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 593 Regional Economics (3 credits)

Description:

This course introduces the student to the methods and techniques of regional economic analysis, and their application to the problems of regional economies within Canada. Among the micro-economic topics covered are the location behaviour of firms and households, and the factors determining the allocation of land among alternative competing uses. Macroeconomic topics include the measurement and analysis of regional income and growth levels, cyclical changes in those levels, and interregional differences in growth rates. Policy problems pertinent to Canadian regions are stressed throughout the course.

Component(s):

Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.

ECON 596 Natural Resource Economics (3 credits)

Description:

This course focuses on the problems of the finiteness of the natural resources base in Canada and in the world, and on an analysis of the demand for and supply of natural resources and energy. The course also discusses the economic aspects of a selected group of conservation measures (financial incentives, reallocation of property rights, regulation).

Component(s):

Lecture

Notes:

- This course is cross-listed with an undergraduate 400-level course.
- Students who have received credit for this topic under an ECON 598 number may not take this course for credit.

ECON 595 Economics of Transportation and Communications (3 credits)

ECON 597 Income Distribution and Economic Inequality (3 credits)

Description:
This course examines the extent and dimensions of economic inequality among households both domestically and internationally. Topics covered include theories of income inequality, wealth inequality, recent trends in polarization, poverty, intergenerational bequests, the welfare state, and the role of government economic policy.

Component(s):
Lecture

ECON 598 Advanced Topics in Economics (3 credits)

Description:
Specific topics and relevant prerequisites for this course are stated in the Graduate Class Schedule.

Notes:

- This course is cross-listed with an undergraduate 400-level course.

Economics MA and PhD Courses

A selection from the following courses will be offered each year. Information about the particular offerings in a given year is available from the Department.

ECON 612 Microeconomics I (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501 and ECON 525; or equivalent.

Description:

This course is devoted to modern consumer and producer theories. Consumer theory is presented first, and at some length, due to its inherent importance, as well as the overlap between the methods and results in this area and in producer theory. Producer theory is dealt with next. In this section of the course, the similarities and differences between these two important building blocks of modern microeconomics are emphasized.

Component(s):
Lecture; Laboratory

ECON 613 Microeconomics II (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 612.

Description:
This course covers a number of topics in microeconomic theory. Main topics include general equilibrium theory and welfare economics, topics in the theory of information, contracts and principal-agent problems, and selected topics in game theory.

Component(s):
Lecture; Laboratory

ECON 614 Game Theory (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ECON 612.

Description:
This course offers an in-depth coverage of some important topics in mostly non-cooperative but also cooperative game theory. Although formal reasoning, precise definitions and proofs are part of the course, emphasis is placed on the importance and use of the various concepts in economics. Main topics include Nash equilibrium and subgame perfection, correlated equilibria, rationalizability, zero sum games, repeated games, (perfect) Bayesian Nash equilibrium, core Shapley value, bargaining problems, and stable sets.

Component(s):
Lecture; Laboratory

ECON 615 Macroeconomics I (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 503 and ECON 525; or equivalent.

Description:
The objective of this course is to introduce students to advanced theories and mathematical tools for rigorous analysis of various macroeconomic issues. Topics covered include consumption, investment, inflation and economic growth theories including Solow, Ramsey-Cass-Koopmans, and endogenous growth models.

Component(s):
Lecture; Laboratory

ECON 616 Macroeconomics II (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ECON 615.

Description:
This course studies various issues in macroeconomic theory within a dynamic general equilibrium framework. Topics covered vary from year to year. However, the first part of the course is usually an initiation into useful techniques such as dynamic programming and the numerical methods.

Component(s):
Laboratory

ECON 618 Monetary Economics (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ECON 615.

Description:
This course includes the theory of money, monetary policy, payment systems, and banking. Among the available models, there will be a particular focus on the New Keynesian model as a framework to analyze monetary policy. Alternative models of money, such as search-theoretic models, are also studied.

Component(s):
Lecture

ECON 619 Political Economy (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 614 and ECON 615.

Description:
This course studies how conflicts of interest are resolved through political institutions in democratic countries. In the first half of the course, tools and models that are useful in the analysis of voting and elections, bargaining in legislatures, and special interest politics are studied. In the second half, these tools are applied to examine: (1) how macroeconomic polices are made through the political process; (2) why inefficient policies may be chosen in the end; and (3) how constitutions (indirectly) shape public policy and consequently the economic outcomes of nations.

Component(s):
Lecture

ECON 622 Economic Development (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501; ECON 503; and ECON 525; or equivalent.

Description:
Modern theories of economic development are presented. Topics include microeconomic reform and transition in developing economies, income inequality and enterprise and, foreign investment and technology flows as a means to development. In addition, analytical techniques used in the study of structure and functioning of developing economies are presented.

Component(s):
Lecture

ECON 623 Growth and Development (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501; ECON 503 and ECON 525; or equivalent.

Description:
This course examines a series of models that are relevant to the study of economic growth and development. These two issues are studied from a macroeconomic perspective; that is, emphasis is placed on highly stylized models characterized by rational decision making within a dynamic environment.

Component(s):
Lecture

ECON 624 Topics in Economic Development (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501; ECON 503 and ECON 525; or equivalent.

Description:
Why are some countries poor and others rich? What can account for cross-country differences in fertility and mortality rates? In gender gaps, civil war, and school attainment? Why did the industrial revolution start in Europe? Why did Europe colonize the rest of the world, rather than the other way around? Why are some former colonies (e.g., U.S., Canada) so much richer than others (e.g., India and Zimbabwe)? This course presents research which addresses these issues. While emphasis in on theoretical research where overlapping-generations models are used to generate multiple steady-state equilibria, empirical work is also examined.

Component(s):
Lecture

ECON 642 Financial Economics I (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501; ECON 503; and ECON 525; or equivalent.

Description:
This course is the first of a two course sequence in financial economics, and is intended to provide an introduction to contemporary theoretical and empirical modeling in financial markets. The course provides a foundation for more advanced work in financial economics while allowing students without an exceptionally strong mathematical background to become familiar with the discipline. Theoretical topics include measures of risk aversion, stochastic dominance, individual portfolio choice under uncertainty, the capital asset pricing model (CAPM), and the arbitrage pricing theory (APT). Empirical topics include tests of CAPM and the APT, the efficient markets hypothesis, performance evaluation, and event test methodology.

Component(s):
Lecture

ECON 643 Financial Economics II (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 642 and ECON 680.

Description:
This course is the second of a two course sequence in financial economics, and is intended to provide an introduction to several advanced topics in theoretical and empirical financial economics. Theoretical topics include the valuation of state contingent securities, dynamic asset pricing, and continuous time methods. Empirical topics include the time-series properties of returns, traditional structural estimation of asset pricing models of maximum-likelihood (ML) and the generalized method-of-moments (GMM), calibration and simulation, variance bounds tests, and an introduction to empirical methods for continuous time models.

Component(s):
Lecture

ECON 656 Public Finance: Expenditure (3 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: ECON 501 and ECON 525; or equivalent.

Description:
This course deals with welfare economics and the role of the government in supplying goods. The principal topics are the optimal supply of public goods, voting mechanisms and models of preference revelation, consumer's surplus, externalities in production and consumption, optimal pricing models, the theory of clubs, inequality, cost-benefit analysis, federalism and federal-provincial relations in Canada.

Component(s):
Lecture

ECON 657 Public Finance: Taxation (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501; ECON 525; or equivalent.

Description:
This course analyzes both the descriptive and normative effects of alternative taxation policies on economic behaviour. In the descriptive part it deals with work-leisure choice, saving decisions and the incidence of the corporation income tax. The normative part deals with the optimality issues of income and commodity taxation. Emphasis is given to both analytical and policy considerations.

Component(s):
Lecture

ECON 658 Environmental Economics (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501; ECON 525; or equivalent.

Description:
This course deals with the inter-relationship between economics and the physical environment. The objective is to depict the problem of environmental quality as an economic problem. The course focuses on the use of concepts and instruments derived from public finance for the resolution of environmental issues. Numerous case studies are discussed.

Component(s):
Lecture

ECON 661 International Trade (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501; ECON 525; or equivalent.

Description:
This course provides a systematic treatment of neo-classical international trade theory, including the theory of comparative advantage,

the theory and practice of commercial policy, trade and welfare, and customs union theory. The course emphasizes the interaction of trade theory with policy questions.

Component(s):
Lecture

ECON 662 International Finance (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501; ECON 503 and ECON 525; or equivalent.

Description:
Selected topics in international finance or open economy macroeconomics are analyzed within modern dynamic general equilibrium models. These include deviations from the law of one price and from purchasing power parity, pricing to market, exchange rate determination, the international transmission of business cycles, the international financial system and crises, sovereign debt and default, global trade imbalances, currency unions (like the European Monetary Union), customs unions (like the European Union), and optimal monetary and fiscal policy in an open economy setting.

Component(s):
Lecture

ECON 673 Industrial Organization (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501; ECON 525; or equivalent.

Description:
This course surveys economic models of industrial behaviour. Topics covered include theories of oligopoly, effects of potential entry, product differentiation, advertising, technological change, vertical integration, monopoly and merger issues.

Component(s):
Lecture

ECON 674 Economics of Regulation (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501; ECON 525; or equivalent.

Description:
This course examines economic theories of regulation as applied to monopolized and competitive industries, together with their policy implications. Topics covered include natural monopoly, contestable markets, effects of “traditional” regulation (such as rate of return and Ramsey pricing), together with an examination of recent theories of optimal regulation under asymmetric information. Topics in the regulation of industries include minimum quality standards, licensing, and predatory business practices.

Component(s):
Lecture

ECON 677 Labour Economics I (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 501; ECON 525; or equivalent.

Description:
This course covers selected topics in the field of labour economics. The focus of the course is on microeconomic analyses and issues. The emphasis is on the application of some of the ideas from the theories of information, uncertainty, and incentives to the understanding of labour markets and institutions. Topics covered include wage and wage differentials, discrimination, human capital, life-cycle models of labour markets, effects of asymmetric information, self-enforcing implicit contracts, efficiency wage models, principal-agent problems, team production and tournaments.

Component(s):
Lecture

ECON 678 Labour Economics II (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 612 and ECON 680.

Description:
The main objective of this course is to examine a relatively small number of topics in modern labour economics and, ultimately, their empirical and econometric application. The topics covered include static and dynamic models of labour supply, dynamic models of job search and job matching, econometric analysis of labour market transition data, unemployment insurance, and unemployment theories.

Component(s):
Lecture

ECON 680 Econometric Theory I (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 521 and ECON 525; or equivalent.

Description:
The general aim of this course is to discuss some of the fundamental methods of econometrics and their theoretical justification. The course begins with a mathematical and statistical review and moves on to a thorough discussion of the general theory of least squares (including instrumental variables) and maximum-likelihood, their justification and associated tests of significance. Applications include linear, single-equation and simultaneous equations models, some non-linear models, and specification analysis. Students are expected to undertake various exercises, including computer-based applications.

Component(s):
Lecture

ECON 681 Econometric Theory II (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ECON 680.

Description:
This course covers advanced topics in estimation and inference in non-linear econometric models including asymptotic theory, generalized method of moments, quasi-maximum likelihood, simulation based methods, non-parametric and semiparametric estimation, bootstrap methods and robust estimators.

Component(s):
Lecture; Laboratory

ECON 682 Applied Econometrics: Time-Series (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ECON 680.

Description:
This course provides an introduction to statistical techniques for analyzing time-series data. Topics include Box-Jenkins methodology, spectral analysis, forecasting, tests for unit roots, multivariate time-series analysis: vector autoregressions, causality, cointegration, and nonlinear time-series models such as ARCH models.

Component(s):
Lecture

ECON 683 Applied Econometrics: Microeconometrics (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ECON 680 or equivalent, and one successfully completed graduate level course in econometrics. If prerequisites are not satisfied, permission of the instructor is required.

Description:
This course provides an introduction to statistical techniques and practical aspects of microeconometric analysis. Topics include binary response models, censored and truncated regression models, analysis of categorical survey data, instrumental variables, treatment effects, panel data models with fixed and random effects, analysis of transition data, estimation by simulation, and estimation of dynamic programming models.

Component(s):
Lecture

ECON 690 Mathematical Economics (3 credits)

ECON 694 Reading Courses in Economics (3 credits)

Prerequisite/Corequisite:
Permission of the Graduate Studies Committee is required.

Description:
A supervised reading course in a specialized area in which no course is offered by the Department.

Component(s):
Reading

ECON 695 Seminar in a Special Topic (3 credits)

Description:
Recent Special Topics have included: Monetary Economics; Game Theory; Workshop in Advanced Economic Theory; Applied Industrial Organization; Empirical Trade; Political Economics; Natural Resources and Environmental Economics Workshop.

Component(s):
Lecture

Notes:

- This course may be taken more than one time for credit, provided the subject matter is different each time.

ECON 696 Research Methodology in Economics (3 credits)

Description:
This course introduces students to the approach followed by economists to conduct scientific research and produce knowledge. Students learn how to formulate a pertinent research question, how to perform a critical evaluation of the relevant literature, how to determine the appropriate methodology to answer this question, and how to communicate findings effectively. The course also examines common pitfalls in data gathering and data analysis.

Component(s):
Lecture

ECON 705 Master's Thesis (18 credits)

Description:
A thesis demonstrates a student's ability to carry out original independent research in Economics. The topic of the thesis must be approved by the Graduate Program Director and a full-time member of the Department who is prepared to act as a supervisor. The thesis is examined in accordance with the guidelines outlined in the Thesis Regulations section of this calendar.

Component(s):
Thesis Research

ECON 802 Comprehensive Examination (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ECON 613 and ECON 616.

Description:
All students must pass one examination in Microeconomic Theory and one examination in Macroeconomic Theory.

Component(s):
Thesis Research

ECON 804 Thesis Proposal (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ECON 802.

Description:
Students are required to defend their thesis proposal before a supervisory committee in a meeting chaired by the Graduate Program Director. The supervisory committee consists of the principal supervisor(s) and at least two other members of the Department. The thesis proposal must include a sound rationale for the proposed research, situate this research within the relevant literature, describe the intended research methods, and discuss the overall research agenda towards the completion of a Thesis.

Component(s):
Thesis Research

ECON 806 Research Seminar (6 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ECON 804.

Description:
This seminar requires the writing and oral presentation of a completed research paper, which normally constitutes the first chapter of the Thesis.

Component(s):

Seminar; Thesis Research

ECON 807 Thesis (46 credits)

Prerequisite/Corequisite:

The following course must be completed previously: ECON 806.

Description:

Doctoral students must submit a thesis, based on their own extensive research, which makes an original contribution to knowledge and defend it in an oral examination in accordance with the thesis regulations specified in the relevant section of this calendar.

Component(s):

Thesis Research

Education Courses

TEAC 606 Foundations of Teaching and Learning in Higher and Continuing Education (3 credits)

Description:

This course introduces students to the core concepts of teaching and learning in higher education. It specifically explores the concept of academic freedom, which underlies work in higher education, as well as the major philosophies of education and their implications to instructors, learners, and learning. Other topics explored include learner-centred instruction, contextual factors affecting learning in higher education, and teaching and learning in the disciplines in which students will be teaching.

TEAC 607 Foundations of Course Design in Higher and Continuing Education (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: TEAC 606.

Description:

This course provides students with the opportunity to apply the foundations of teaching and learning in higher education to the design of a course they will actually teach. It explains how to identify the needs underlying a course, specify the learning outcomes; prepare authentic and appropriate assessments of those objectives; design a course that incorporates the objectives and assessments; prepare a course outline and Moodle site (or site in a similar course management system); and plan individual lessons with a learner-centred focus. This course also invites students to apply the scholarship of teaching and learning in their disciplines to the design of their courses.

TEAC 608 Foundations of Facilitation of Higher and Continuing Education (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: TEAC 607.

Description:

This course prepares students to teach in the face-to-face and live virtual classrooms. Specifically, it explains how to prepare for class sessions—even if lesson plans are already developed—how to establish an inclusive, supportive, productive learning environment; how to engage learners during a session; how to foster learning through the facilitation of activities—including conversations on subjects such as equity, anti-racism, decolonization, and similar topics, responses to questions that arise and management of the class; and how to assess whether students have mastered the material before moving onto another unit. This course also helps students adjust their skills for different instructional media.

TEAC 609 Field Experience in Teaching (6 credits)

Prerequisite/Corequisite:

The following course must be completed previously: TEAC 608.

Description:

This internship and related instruction is an opportunity for students to teach one 3-credit university, Cegep, or college course, or one 39-hour Continuing Education course in their discipline using the materials developed in TEAC 607 and to reflect on the experience. This course specifically helps nascent instructors practice classroom facilitation skills, receive feedback on their in-class performance, and respond to the feedback. It also provides support in areas such as the grading of assignments and the preparation of teaching portfolios, including a teaching statement and other resources expected by prospective employers. The course also offers opportunities for all students enrolled in the the internship to share and debrief with each other on their in-class teaching experiences.

Adult Education Graduate Diploma Courses

ADIP 500 Adult Education in Québec as a Field of Study (3 credits)

Component(s):

Lecture

ADIP 501 Philosophical Issues in Educational Research (3 credits)

Component(s):

Lecture

Notes:

- Students who have received credit for ESTU 601 or ETEC 507 or ETEC 607 may not take this course for credit.

ADIP 510 Adult Education in Québec and Canada (3 credits)

Component(s):

Lecture

ADIP 511 Educational Problems in Philosophical Perspective (3 credits)

Component(s):

Lecture

ADIP 512 Educational Problems in Historical Perspective (3 credits)

Component(s):
Lecture

ADIP 513 Anthropological Concepts and Methods in Education (3 credits)

Component(s):
Lecture

ADIP 514 Social Psychological Foundations of Education (3 credits)

Component(s):
Lecture

ADIP 515 Research Issues and Methodologies in Education (3 credits)

Component(s):
Lecture

ADIP 520 Adults as Learners (3 credits)

Component(s):
Lecture

ADIP 530 Roles and Competencies of Adult Educators (3 credits)

Component(s):
Lecture

ADIP 533 Facilitating Adult Learning (3 credits)

Component(s):

Lecture

ADIP 535 Studies in Educational Change (3 credits)

Component(s):
Lecture

ADIP 540 Introduction to Research in Adult Education (3 credits)

Component(s):
Lecture

ADIP 541 Designing Adult Learning Projects (3 credits)

Component(s):
Lecture

ADIP 542 Evaluating Adult Learning Projects (3 credits)

Component(s):
Lecture

ADIP 544 School and Society (3 credits)

Component(s):
Lecture

ADIP 550 Reflective Practice I (3 credits)

Component(s):
Lecture

ADIP 551 Introduction to Administration of Adult Education Programs (3 credits)

Component(s):
Lecture

ADIP 570 Workshops for Adult Educators (3 credits)

Component(s):
Lecture

ADIP 572 Concepts and Values in Adult Education (3 credits)

Component(s):
Lecture

ADIP 580 Reading Course (3 credits)

Component(s):
Reading

ADIP 581 Reading Course (3 credits)

Component(s):
Reading

ADIP 585 Integrative Internship I (3 credits)

Prerequisite/Corequisite:
Students must have completed at least 15 credits in their program of study, including ADIP 500 Adult Education in Quebec as a Field of Study prior to enrolling. This course is associated with, and normally represents, a prerequisite for Integrative Internship II.

Description:
Integrative Internship I is designed to allow students to build on their acquired knowledge, skills, values and attitudes through interaction with a chosen education environment. The first Internship requires students to select, contact and establish a working relation with an organization which offers educational activities to adults in their community. A supervised Special Project for an adult education provider is initiated. At this stage, the emphasis is on observation and information gathering, in preparation for taking on a more active role in Integrative Internship II.

Component(s):
Lecture; Practicum/Internship/Work Term

ADIP 586 Integrative Internship II (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ADIP 585.

Description:
This internship is designed to extend the student's personal aims and philosophy of adult education arrived at in Integrative Internship I by completing a supervised Special Project in an approved adult education facility, where supervision is provided by a member of a host institution in consultation with the professor.

Component(s):
Lecture; Practicum/Internship/Work Term

ADIP 588 Advanced Topics in Adult Education (3 credits)

Component(s):
Lecture

ADIP 589 Advanced Topics in Adult Education (3 credits)

Component(s):
Lecture

ADIP 590 Issues in the Practice in Adult Education (3 credits)

Component(s):

Lecture

ADIP 593 Practicum I (3 credits)

Prerequisite/Corequisite:

Students must have completed at least 18 credits in the Diploma in Adult Education Teacher Certification Option II prior to enrolling. Students enrolling in this practicum are expected to have completed courses in theoretical and conceptual content in the field of adult education.

Description:

This course is designed for students who possess a Provincial Teaching Authorization or are currently working in adult education in the Quebec school system. This practicum provides an opportunity in which they can apply this knowledge to their classroom teaching experience.

Notes:

- Upon presentation of a statement from the school authority attesting to the satisfactory performance in an adult education classroom for a minimum of four months, a student may be exempted from this course.

ADIP 594 Practicum II (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: ADIP 593.

Description:

This course is designed for students who possess a Provisional Teaching Authorization or are currently working in adult education in the Quebec school system. Satisfactory classroom performance in the student's subject matter specialty is judged on the basis of reports from the school principal, mentors chosen from the teaching staff, and a supervisor from the University.

ADIP 597 Adult Education I - Selected Topics (3 credits)

Also listed as ESTU 676.

Prerequisite/Corequisite:

Component(s):

Lecture

ADIP 598 Adult Education II - Selected Topics (3 credits)

Also listed as ESTU 677

Prerequisite/Corequisite:

Component(s):
Lecture

EDUC 553 Education in Québec (3 credits)

Applied Linguistics MA Courses

APLI 604 Applied Language Studies (3 credits)

Description:
This course examines the different theoretical concepts and methods used to analyze and describe the linguistic structure of language, and explores ways in which these can be applied to the teaching of second languages. The course introduces students to the key concepts that characterize the different components of language, namely phonology, morphology, syntax and semantics, within an approach that recognizes that languages can be affected by the social, psychological, and pragmatic aspects of human behaviour.

Component(s):
Lecture

APLI 621 Issues in Second Language Acquisition (3 credits)

Description:
Research in second language acquisition (SLA) is surveyed in this course. Students read, critique, and discuss a number of research reports and survey articles on topics including research techniques in SLA, individual differences believed to affect success in second language learning (e.g., age, motivation), the systematicity of learner language (interlanguage, developmental sequences), the influence of learners' first language on the structure of their interlanguage, the development of general theories of SLA. The course concludes with a discussion of SLA research carried out in classroom settings.

Component(s):
Lecture

APLI 660 Research Methods I (3 credits)

Description:
The principal aims of the course are to enable students better to evaluate reports of empirical research in the language sciences and to plan limited studies of their own. Emphasis is placed upon the logic of research designs, the nature of scientific proof, and the

assumptions underlying data analytic procedures. Case studies of published research, readings and lectures illustrate the concepts of data, scales, models, sampling, theory, description, estimation and significance testing.

Component(s):
Lecture

Cluster Courses

Cluster A: Focus on Theory

APLI 623 Sociolinguistic Aspects of Bilingualism and Multilingualism (3 credits)

Description:
This course is an introduction to educational and sociolinguistic issues affecting the promotion and maintenance of individual and societal bilingualism, multilingualism, and multiculturalism. The societal consequences of being multilingual and multicultural and the perspectives of both students and educators in multilingual/multicultural language classrooms will be examined.

Component(s):
Lecture

Notes:

- Students who have received credit for APLI 642 may not take this course for credit.

APLI 624 Psycholinguistic Aspects of Second Language Acquisition (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: APLI 660.

Description:
This course examines issues in second language acquisition and bilingualism/multilingualism from a cognitive (psycholinguistic) perspective. The aim of the course is to familiarize students with basic psycholinguistic concepts of language representation and use, focusing on the learning of different aspects of language, the role of attention and memory in language acquisition, the development of language comprehension and production skills, and the cognitive consequences of bilingualism/multilingualism. Throughout the course, emphasis is given to understanding research methodologies used in psycholinguistic investigations.

Component(s):
Lecture

Notes:

- Students who have received credit for APLI 642 may not take this course for credit.

APLI 626 Variationist Second Language Acquisition (3 credits)

Description:
The acquisition of a second language is a process that is inherently variable due to factors such as the influence of the learner's first language, the target language, extralinguistic variables, and other factors. This course examines the interplay of these variables, focusing on current research in variable second language acquisition and on the pedagogical implications and applications of this knowledge for second language teaching.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under an APLI 651 number may not take this course for credit.

APLI 627 Individual Differences in Second Language Acquisition (3 credits)

Description:
The course provides an overview of learners' individual differences in cognitive, social, affective, and motivational variables and the role of those differences in second language teaching and learning. Course topics may include language aptitude, motivation, learning and cognitive styles, personality, and language learning strategies. The course offers a research-based framework for understanding how individual differences impact language learning for different learners in various learning contexts.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under an APLI 651 number may not take this course for credit.

APLI 634 Cross-Linguistic Influence (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: APLI 604.

Description:
This course provides an overview of different perspectives that have been taken on the ways previously learned languages affect the learning of subsequent languages. Topics include: the contrastive analysis and error analysis approaches; avoidance; markedness; selective, bidirectional, and conceptual transfer; and factors affecting cross-linguistic influence among trilingual and multilingual speakers. Throughout the course, the implications for language teaching of the theoretical perspectives and empirical findings are considered.

Component(s):

Lecture

Cluster B: Focus on Language

APLI 601 Phonological Aspects of Second Language Acquisition (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: APLI 604.

Description:
This course is an introduction to second language phonology, with emphasis on how theoretical knowledge and research can be applied to the teaching of pronunciation in traditional and computer-based environments. This course familiarizes students with the English sound system and associated phonetic phenomena, research in the development of second language phonology, and key concepts in phonemic representation, production and perception.

Component(s):
Lecture

APLI 610 Teaching and Learning Second Language Vocabulary (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: APLI 604.

Description:
The course provides an overview of research perspectives on second language vocabulary acquisition. Topics include the characteristics of lexis, the structure of the mental lexicon, implicit and explicit learning, and issues in assessment. The course also outlines a research-informed approach to instruction: in addition to examining both old and new techniques for teaching vocabulary, it explores developments in corpus linguistics that are relevant to vocabulary instruction and materials design.

Component(s):
Lecture

APLI 616 Pedagogical Grammar (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: APLI 604.

Description:
This course surveys the theoretical and empirical literature related to the teaching and learning of grammar in second language classrooms. Topics include the nature of pedagogical rules, the use of metalinguistic terminology, teachers' knowledge and beliefs, learner characteristics, task types, and sequencing. Students also study a grammar structure in depth for which they subsequently develop, pilot, and critically evaluate a set of instructional materials.

Component(s):
Lecture

APLI 636 Language Awareness (3 credits)

Description:
This course focuses on current research and practice in language awareness relating to language teaching and learning for a variety of learners in different contexts. Topics may include the learning of first, second and additional languages, language teaching methodology, language teacher education, attitudes towards language, cross-linguistic and cross-cultural awareness, and critical language awareness. Throughout the course, emphasis is placed on both the theoretical and practical implications of language awareness.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under an APLI 651 number may not take this course for credit.

APLI 643 Pragmatics and Second Language Acquisition (3 credits)

Description:
The course provides an overview of pragmatics, which includes topics ranging from reference, implicature, presupposition, speech acts, information structure, and conversational structure. The course also provides a research-informed approach to the study of these topics in second language learning contexts, exploring developments in second language research that are relevant to the understanding of pragmatics.

Component(s):
Lecture

Cluster C: Focus on Pedagogy

APLI 625 Second Language Speaking and Listening (3 credits)

Description:
The course provides an overview of several topics in second language listening and speaking such as fluency, formulaic language, strategies, and inferencing. The course provides a research-informed approach to second language listening and speaking, exploring trends in second language acquisition research and pedagogy that are relevant to the understanding of skill development.

Component(s):
Lecture

APLI 630 Second Language Syllabus Design and Curriculum Planning (3 credits)

Description:

The aims of the course are to examine the evolution of the syllabus in second language teaching and to consider issues related to the development, planning and implementation of language programs in a range of educational settings. Topics include the history of second language teaching; current issues in pedagogical practice; assessment of student needs; and the design, sequencing, and evaluation of language teaching materials.

Component(s):

Lecture

Notes:

- Students who have received credit for APLI 638 may not take this course for credit.

APLI 635 Language Assessment (3 credits)

Description:

The course provides an overview of theory and research that informs language testing. Students explore historical developments in language assessment as well as current trends. The course enables them to critically evaluate a range of test types including standardized placement instruments, diagnostic tests, progress/achievement measures, and non-traditional assessment techniques. Students are guided in designing sample tests; they are also familiarized with established methods for analyzing test items and interpreting results.

Component(s):

Lecture

APLI 644 Technology in Language Learning (3 credits)

Description:

This course explores theoretical and applied issues related to the use of technology in second language learning and teaching. The principal aims of the course are to enable students to critically evaluate existing instructional uses of technology and to design methodologically sound technology-based materials for second language teaching. Emphasis is placed on developing skills needed for the integration of instructional technology into second language instruction.

Component(s):

Lecture

APLI 646 Literacy (3 credits)

Description:

This course examines the development of reading and writing abilities in a second language, including the connections between the two. It discusses literacy issues pertaining to different age groups and proficiency levels, including university students acquiring advanced academic writing skills. Throughout the course, the implications for language teaching of the different theoretical and empirical findings will be considered.

Component(s):
Lecture

APLI 647 Supervision of Practice Teaching (3 credits)

Description:
This course is designed for students who have some ESL teaching experience and a particular interest in working in the field of teacher training. The course has both a practical and a theoretical component. In the practical component, students observe and assist novice ESL teachers; in the theoretical component, students meet weekly in an academic seminar.

Component(s):
Lecture

Applied Linguistics Elective Courses
Each year the department offers a selection of courses from those listed below.

APLI 641 Research Methods II (3 credits)

(Also listed as ETEC 641.)

Prerequisite/Corequisite:
The following course must be completed previously: APLI 660.

Description:
This course extends students' research competencies and prepares them to conduct basic (thesis) and applied research (such as thesis-equivalents, needs assessments and evaluations) and analyze resulting data. This course specifically explores how to justify a study, and uses methods like surveys, interviews, focus groups, case studies, and experiments. This course also explores how to complete an application for research ethics approval and why those approvals are necessary as well as software that can assist with data collection and analysis. The modular approach of this course lets students tailor their learning to their own research interests.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for ETEC 641 or for this topic under an APLI 651 number may not take this course for credit.

APLI 651 Special Topics in Applied Linguistics (3 credits)

Description:
This course provides an advanced treatment of specialized literature in an area of Applied Linguistics.

Component(s):
Lecture

APLI 671 Reading Course in Applied Linguistics I (3 credits)

Component(s):
Reading

APLI 672 Reading Course in Applied Linguistics II (3 credits)

Component(s):
Reading

APLI 673 Reading Course in Applied Linguistics III (3 credits)

Component(s):
Reading

APLI 674 Reading Course in Applied Linguistics IV (3 credits)

Component(s):
Reading

APLI 675 Reading Course in Applied Linguistics V (6 credits)

Component(s):
Reading

Applied Linguistics Thesis and Research Courses

APLI 690 Thesis Proposal (3 credits)

Component(s):
Thesis Research

APLI 691 Thesis (18 credits)

Description:
An oral thesis defence is not required for this program.

Component(s):
Thesis Research

Notes:

- Please refer to the Thesis regulations section for further information on the master's thesis evaluation.

APLI 695 Research Proposal (3 credits)

Prerequisite/Corequisite:
The following courses or equivalent must be completed previously: APLI 604 , APLI 621, APLI 660.

Description:
In this course, students conceptualize and write a research proposal in the field of applied linguistics, with the assistance of an assigned faculty supervisor. Students execute this proposal in APLI 696 (Research Paper).

Component(s):
Thesis Research

Notes:

- This course is graded on a pass/fail basis.

APLI 696 Research Paper (9 credits)

Prerequisite/Corequisite:
The following course or equivalent must be completed previously: APLI 695.

Description:
Students analyze and synthesize knowledge in the field of applied linguistics. Students demonstrate this ability by writing and orally defending a research paper (conceptualized in APLI 695),developed with the assistance of an assigned faculty supervisor.

Component(s):
Thesis Research

Notes:

- This course is graded on a pass/fail basis.

Child Studies MA Courses

The following courses are offered:

Required Courses

These courses are required of all students and form the foundation for further courses in the program.

CHST 600 Advanced Child Development (3 credits)

Description:

This course presents an overview of the theories that have helped to shape the field of child development. The impact of various theoretical approaches (e.g., psychoanalytic, cognitive, behavioral, social) is examined by providing perspectives on issues of both historical and contemporary importance.

Component(s):

Lecture

CHST 603 Seminar: Issues in Child Studies (3 credits)

Description:

This course provides students with an overview of the field of child studies. Students are introduced to diverse issues through the work of program faculty, invited scholars and student initiatives.

Component(s):

Seminar

CHST 605 Quantitative Methods of Inquiry (3 credits)

Description:

This course introduces students to the philosophy, principles, and techniques in quantitative inquiry in the social sciences. Specifically, it focuses on the main quantitative methodologies of inquiry that are necessary for conducting research and interpreting data in child studies. The course covers techniques for addressing quantitative research questions in the field, including gathering, organizing, analyzing, and communicating data. Statistical techniques that are commonly used to address such questions are covered, with appropriate computer software for key methodologies. Laboratory work is provided to give students practical experience with such software.

Component(s):

Lecture; Laboratory

Notes:

- Students who have received credit for CHST 607 may not take this course for credit.

CHST 606 Qualitative Methods of Inquiry (3 credits)

Description:
This course introduces students to the philosophy, principles, and approaches in qualitative inquiry in the social sciences. Specifically, it focuses on the main methodologies of inquiry that are necessary for conducting and interpreting qualitative data in child studies. The course covers techniques for addressing qualitative research questions in the field, including gathering, organizing, analyzing, and communicating data. Appropriate methods for the coding and analysis of qualitative data are covered, with laboratory work to support students' practical experience with qualitative data.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for CHST 607 may not take this course for credit.

CHST 608 Field Observations (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: CHST 605 and CHST 606; or equivalent.

Description:
This course addresses a range of observational techniques for observing children in their natural environments (e.g., running records, time and event sampling, rating scales). Students learn to use a variety of observational methods, analyze the information, and write reports. Students spend approximately 2-3 hours weekly in an appropriate setting to conduct the observations.

Component(s):
Lecture

Notes:

- Students who have received credit for CHST 604 may not take this course for credit.

Elective Courses
These courses focus on the child and the wider community. They are offered on a rotating basis.

CHST 610 Applied Cognition and Learning (3 credits)

Description:
This course provides an overview of the ways in which cognition has contributed to the understanding of how children engage in the

content of school subjects, such as mathematics, science, literacy and history. Topics include general cognitive processes, such as memory, transfer, metacognition, and expertise, as well as those related to learning in specific content areas. The course examines ways in which theory and empirical findings can and have informed instructional practice.

Component(s):
Lecture

CHST 614 Social Processes (3 credits)

Description:
This course addresses issues regarding the development of critical social processes in the life of the child, which have implications for later functioning. Topics include the importance of early emotional development (e.g., attachment, temperament, emotional regulation) for social interaction, peer relations (e.g., friendships, bullying and victimization, prosocial behaviour), the development of self and social understanding, the role of play in development, and gender roles and socialization.

Component(s):
Lecture

CHST 618 Childhood Settings (3 credits)

Description:
This course examines a variety of extra-familial settings in which children and families function (e.g. child care, kindergarten, elementary school, after school programs, recreation programs, hospital settings, programs for children with special needs). Various aspects of these programs are examined such as mission statements, program philosophy, training requirements, regulations, and professional development requirements. Methods to evaluate the quality of the settings are presented. Students learn to analyze a specific program of their choosing and write a case study report. Guest lectures and field trips to different types of settings may form part of the course.

Component(s):
Lecture

CHST 620 Children's Play: From Theory to Practice (3 credits)

Description:
This course introduces students to the topic of play with an emphasis on relating theory to practice. Historical and modern theories (e.g., psychoanalytic, cognitive, and social cognitive) of play are discussed. Various definitions and types of play that emanate from theoretical approaches and different approaches to measuring play are covered, as well as the relationship between children's play and domains of development and culture, and curriculum and teaching. Issues related to designing developmentally appropriate play spaces and materials are examined.

Component(s):
Lecture

CHST 622 The Family (3 credits)

Description:
This course addresses major theoretical perspectives on family functioning and the nature of parenting (e.g., transitions to parenting, attachment, child rearing styles, parenting children with special needs) and family relationships (e.g., parent-child, sibling, grandparents). Issues related to the modern Canadian family are also discussed (e.g., single and adolescent parents, divorce and remarriage, parental employment, child care, transition to school, and diversity of family lifestyles).

Component(s):
Lecture

CHST 624 Curriculum Models in Childhood Settings (3 credits)

Description:
This course examines principles and models of curriculum in relation to a range of early childhood settings, including daycare, after school programming, kindergarten, and elementary school. The focus is on analyzing current curriculum models from different perspectives as well as identifying and discussing issues related to curriculum design and implementation. Student interests and areas of study are taken into account in the selection of the readings, interactive curriculum materials, and resources.

Component(s):
Lecture

Notes:

- Students who have received credit for CHST 601 may not take this course for credit.

CHST 630 Issues in Education: Language, Literacy, Numeracy, and Scientific Reasoning (3 credits)

Description:
In this course, students reflect on specific aspects of cognitive development and their impact on education. Topics are offered on a rotating basis and may include the development of language, literacy, numeracy and/or scientific reasoning. The literature on selected topics is examined, with particular emphasis on both classic and current research.

Component(s):
Lecture

CHST 632 Issues in Inclusive and Special Education (3 credits)

Description:
This course examines theoretical issues in inclusive and special education and focuses on educational practices that provide all children with equitable access to learning. Curricula, policies and practices in educational settings are analyzed and provide students

with an in-depth understanding so as to meet the needs of diverse learners.

Component(s):
Lecture

CHST 640 Special Topics in Child Studies (3 credits)

Component(s):
Lecture

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.

Internship and Directed Study Courses

CHST 650 Directed Study (3 credits)

Prerequisite/Corequisite:
Permission of the Graduate Program Director is required.

Description:
Students may enrol in a directed study under faculty supervision in order to undertake specialized study of theoretical or research-related topics.

Component(s):
Reading

CHST 690 Internship Proposal (3 credits)

Prerequisite/Corequisite:
The following courses or equivalent must be completed previously: CHST 605 and CHST 606.

Description:
The internship proposal prepares students to investigate an applied problem or topical issue in child studies through the internship field placement. Students formulate a written proposal for the internship project, including a literature review and plan, and may begin to address ethical considerations relative to the university and the fieldwork site.

Component(s):
Thesis Research

Notes:

- This course is graded on a pass/fail basis.

CHST 691 Internship Field Placement I (3 credits)

Prerequisite/Corequisite:
The following course or equivalent must be completed previously: CHST 690.

Description:
Students integrate into the field placement. They are required to document steps taken towards integration via a system agreed upon with the internship supervisor (e.g., a journal or logbook). They may also prepare ethics protocols, begin consent processes, and refine their proposal as needed.

Component(s):
Practicum/Internship/Work Term

CHST 692 Internship Field Placement II (6 credits)

Prerequisite/Corequisite:
The following course or equivalent must be completed previously: CHST 691.

Description:
Students complete their field placements. The field placement includes preparation directly related to carrying out the activities (e.g., observing at the site, preparing materials, honing professional skills via pathways agreed upon with the internship supervisor); conducting the internship project as described in the proposal; and maintaining a log of activities as well as a reflective journal. Students are required to spend 150 to 200 hours in these activities, as decided with the internship supervisor.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.

CHST 699 Internship Report (6 credits)

Prerequisite/Corequisite:
The following course or equivalent must be completed previously: CHST 692.

Description:
The final report is a detailed record of the internship project and includes a description and analysis of all work produced for the field placement. In addition, all instruments, curricular materials, journal entries, and other supporting documents are included in the final report.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

Thesis Courses

CHST 697 Thesis Proposal (3 credits)

Description:
Under the supervision of a thesis supervisor, the student writes a proposal presenting a research topic; the overall goal of which is to demonstrate that the student is capable of undertaking an independent research project.

Component(s):
Thesis Research

CHST 698 Research and Thesis (18 credits)

Description:
The thesis consists of the formulation and presentation of the research results which are then defended before a committee consisting of the student's supervisor and at least two other scholars from the department and/or scholars from relevant disciplines in other departments or institutions.

Component(s):
Thesis Research

Educational Studies MA Courses

Courses listed indicate the full range of offerings. They are offered subject to the availability of faculty, and (with the exception of a minimum of six core courses) not all in a given year.

Core Courses

Specific topic areas of study include: Issues of Difference: Gender, Class and Race; politics and education; class, culture and education; educational problems in historical and philosophical perspectives; minority status and learning; literacy; inter-cultural and cross-cultural education; school and society; curriculum, popular culture and education; and comparative and intercultural education. Courses listed indicate the full range of offerings. They are offered subject to the availability of faculty and (with the exception of a minimum of six core courses) not all in a given year.

ESTU 601 Philosophical Issues in Educational Research (3 credits)

Description:
There are a number of important philosophical questions that lie behind the everyday practice of education research. The questions

include: What does it mean to say that research in education is “scientific”? Is science (and, by extension, educational research) really value neutral and objective? What kinds of education research should count as legitimate? In the first part of the course, various definitions of science, for example, those of Karl Popper and Thomas Kuhn, and some influential critiques of the scientific enterprise are examined. In the second part of the course, some of the ongoing debates about appropriate research methods in education are analyzed.

Component(s):
Lecture

Notes:

- Students who have received credit for ADIP 501 or ETEC 507 or ETEC 607 may not take this course for credit.

ESTU 611 Philosophical Perspectives in Education (3 credits)

Description:
This course is a forum for common inquiry and reflection upon issues that have deep significance for our lives as human beings, students, and educators. Some emphasis is placed on gaining an understanding of historically significant philosophical positions and their application to problems of teaching and education. However, the primary focus is on cultivating a desire and commitment to engage in philosophical thinking as it applies to matters of concern to teachers and teaching. The course is premised on a number of questions. These include but are not limited to: What is education? How do we understand education in its moral, ethical and spiritual dimensions? What role does education play (or have the potential of playing) in personal and social transformation? What is effective teaching and how can we cultivate the courage to teach effectively?

Component(s):
Lecture

ESTU 612 Historical Perspectives in Education (3 credits)

Description:
This course acquaints students with a broad historical approach to a variety of significant educational issues. The emphasis will be placed on the examination of a number of critical components of modern educational thought and practice (comprising e.g., alternative schools of educational thought, politics and education, the changing curriculum, or the organization of schooling) as seen and presented in historical perspective.

Component(s):
Lecture

ESTU 613 Anthropological Concepts and Methods in Education (3 credits)

Description:
The course introduces the students to qualitative methods in educational research. The first purpose is to review studies of education which utilize anthropological concepts and/or methods. The second purpose is to examine the three principal foci of qualitative

research in the area: a. schools and their relations with the socio-cultural milieu in which they exist; b. the description and analysis of classroom processes; c. the study of individual pupils and educators. The third purpose is to assess the strengths and weaknesses of studies focusing on these areas. This includes describing and discussing some of the systematic methodological biases apparent in the literature and suggesting directions for future research.

Component(s):
Lecture

ESTU 614 Social Psychological Foundations of Education (3 credits)

Description:
The course provides a basic understanding of the ways in which psychologists examine and analyze human behaviour, collect and interpret data, develop theories and form generalizations. It is not intended as a general survey course in the area of educational psychology. Several topics in an area will be studied in order to exemplify the methods and techniques employed in the psychological analysis of behaviour in educational settings.

ESTU 615 Introduction to Research in Education (3 credits)

Description:
By providing an overview of the commonly used research methods in education today, students gain the knowledge required to critique research that is reported in the education and social science literature. Topics include the nature of educational research, the different qualitative and quantitative research approaches, types of data collection, and knowledge of research ethics. Students gain experience in developing a research statement and writing a research proposal.

ESTU 635 Studies in Educational Change (3 credits)

Description:
This course is concerned with the investigation and comparison of problems of education in the context of time and society. Concentrating on concrete “case studies” chosen from the 19th century and the contemporary period, it focuses on the principles on which systems of education are constructed, and their change or retention, in the broad socio-economic and ideological context.

Component(s):
Lecture

ESTU 644 School and Society (3 credits)

Description:
This course is concerned with the family, the educational system, the economy and the polity, and with the relations between them. The main concern is with social institutions and the socialization process with which they are involved. Particular emphasis will be placed on the social class differentials in the conditions of socialization and educational opportunity, and on social class differentials in educational achievement.

Component(s):
Lecture

ESTU 670 Adult Education as a Field of Study (3 credits)

Description:
This course is designed as a survey at an advanced level, of the theory and practice of adult education through an examination of the existing literature. Emphasis will be placed on helping the student gain knowledge, understanding, and a critical perspective of the following: aims; history and philosophy; needs and characteristics of adult learners; functions and skills of adult education practitioners; settings, agencies and program areas; and planning and evaluation in adult education. A Canadian and Quebec perspective will be emphasized.

Component(s):
Lecture

Topics Courses

ESTU 602 Educational Theory (3 credits)

Component(s):
Lecture

ESTU 603 The Philosophy of the Curriculum (3 credits)

Component(s):
Lecture

ESTU 604 Philosophy of Education (3 credits)

Component(s):
Lecture

ESTU 606 Study of a Philosopher of Education (3 credits)

Component(s):
Lecture

ESTU 608 Selected Area of Education (3 credits)

Component(s):
Lecture

ESTU 620 History of Canadian Education (3 credits)

Component(s):
Lecture

ESTU 631 Anthropology and Education I (3 credits)

Component(s):
Lecture

ESTU 632 Anthropology and Education II (3 credits)

Component(s):
Lecture

ESTU 633 History of Educational Ideas (3 credits)

Component(s):
Lecture

ESTU 640 Sociology of Education (3 credits)

Component(s):
Lecture

ESTU 641 Topics in Sociology of Education II (3 credits)

Component(s):

Lecture

ESTU 642 Selected Topics in Educational Problems (3 credits)

Component(s):
Seminar

ESTU 643 The Education of Immigrants and Minorities (3 credits)

Component(s):
Lecture

ESTU 645 Curriculum Theory (3 credits)

Component(s):
Lecture

ESTU 648 Politics and Education (3 credits)

Component(s):
Lecture

ESTU 650 Social Psychology of Education (3 credits)

ESTU 653 Psychology of Education (3 credits)

Component(s):
Lecture

ESTU 671 Adults as Learners (3 credits)

Component(s):

Lecture

ESTU 672 Facilitating Adult Learning (3 credits)

Component(s):
Lecture

ESTU 673 Administration of Adult Education Programs (3 credits)

Component(s):
Lecture

ESTU 674 Evaluating Adult Learning Projects (3 credits)

Component(s):
Lecture

ESTU 675 Concepts and Values in Adult Education (3 credits)

Component(s):
Lecture

ESTU 676 Adult Education I - Selected Topics (3 credits)

Component(s):
Lecture

Notes:

- This course is cross-listed with ADIP 597.

ESTU 677 Adult Education II - Selected Topics (3 credits)

Component(s):
Lecture

Notes:

- This course is cross-listed with ADIP 598.

General Courses (All Options)

ESTU 680 Reading Course (3 credits)

Component(s):
Reading

ESTU 681 Reading Course (30 credits)

Component(s):
Reading

ESTU 682 Reading Course (3 credits)

Component(s):
Reading

Thesis and Directed Study Courses

ESTU 690 Thesis and Tutorial (21 credits)

Component(s):
Thesis Research

ESTU 692 Directed Study (with Extended Essay or Research Project) (12 credits)

Component(s):
Independent Study; Research

Educational Technology MA and Instructional Technology Graduate Diploma Courses

The master's level courses offered in educational technology fall into the following categories:

Philosophical and Theoretical Foundations of Educational Technology

Psychological Aspects of Educational Technology

Communication Theory

Development and Evaluation of Curriculum and Educational Materials Research

Research Methodology for Educational Technology

Instructional Design and Performance Technology

Educational Computing

Management of Performance and Improvement

Distance Education and E-Learning

Field Experience and Research in Educational Technology

Thesis and Internship in Educational Technology

Philosophical and Theoretical Foundations of Educational Technology

ETEC 607

Psychological Aspects of Educational Technology

ETEC 613

Development and Evaluation of Curriculum and Educational Materials Research

ETEC 636 ETEC 637

Research Methodology for Educational Technology

ETEC 640 ETEC 641

Instructional Design and Performance Technology

ETEC 650 ETEC 651 ETEC 652

Educational Computing

ETEC 660 ETEC 662 ETEC 665 ETEC 666 ETEC 669

Management of Performance and Improvement

ETEC 671 ETEC 672 ETEC 673 ETEC 676

Distance Education and E-Learning

ETEC 681

Field Experience and Research in Educational Technology

ETEC 690 ETEC 691 ETEC 692 ETEC 693

Thesis and Internship in Educational Technology

ETEC 781 ETEC 782 ETEC 783 ETEC 784 ETEC 785 ETEC 792 ETEC 795 ETEC 796

Core Courses

ETEC 613 Learning Theories (3 credits)

Description:
The primary goal of the course is for students to develop a critical understanding of classic and contemporary theories of learning, such as behaviourism, cognitivism, neo-cognitivism, and socio-constructivism as they inform instructional practice. Secondary course goals include enhancing students' abilities to: a) read and evaluate the primary literature in the area; b) present and write within the discipline; c) evaluate applications of theory to practice; and d) collaborate professionally including via computer conferencing.

Component(s):
Lecture

Notes:

- Students who have received credit for ETEC 513 may not take this course for credit.

ETEC 640 Research Methods I (3 credits)

Description:
This course provides an introduction to research methodologies germane to the field of educational technology. Students acquire competencies in analyzing, synthesizing and evaluating empirical research that employ quantitative, qualitative and mixed methodologies. Special emphasis is placed on acquiring skills to critique and review literature in educational technology.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for ETEC 540 may not take this course for credit.

ETEC 641 Research Methods II (3 credits)

(Also listed as APLI 641.)

Prerequisite/Corequisite:
The following course must be completed previously: ETEC 640.

Description:
This course extends students' research competencies and prepares them to conduct basic (thesis) and applied research (such as thesis-equivalents, needs assessments and evaluations) and analyze resulting data. It specifically explores how to justify a study, and uses methods like surveys, interviews, focus groups, case studies, and experiments. This course also explores how to complete an application for research ethics approval and why those approvals are necessary as well as software that can assist with data collection and analysis. The modular approach of this course lets students tailor their learning to their own research interests.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for ETEC 541 or APLI 641 may not take this course for credit.

ETEC 650 Fundamentals of Instructional Design (3 credits)

Description:
This course introduces students to instructional design, which refers to both the systematic process for preparing learning materials as well as to the theories and principles that guide that work. Working on a real-world project, students directly engage in the process and prepare an instructional program.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for ETEC 550 may not take this course for credit.

ETEC 651 Fundamentals of Human Performance Technology (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ETEC 650.

Description:
Building on the base of instructional design, this course introduces human performance technology (HPT). HPT is a set of principles and methods for identifying and solving problems that cannot be solved through instructional programs alone. Working on a real-world project, students design a variety of non-instructional interventions.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for ETEC 551 may not take this course for credit.

ETEC 671 Administering Educational Technology Groups (3 credits)

Description:
This course prepares students to integrate into the real-world practice of educational technology and to eventually assume leadership positions in organizations. Through readings, experiential learning activities, and other assignments, this course introduces students to the basic themes of administering educational technology groups: (a) business management—successfully competing for work and resources needed to complete it; (b) project management—planning work and overseeing its progress; and (c) people management—establishing and managing expectations of, and relationships with, members of the group.

Component(s):
Lecture

Notes:

- Students who have received credit for ETEC 571 may not take this course for credit.

ETEC 672 Project Management (3 credits)

Description:
This course focuses on the application of project management methodologies in education and training, especially online learning and systems implementation projects. This course specifically explores project management as a discipline, a process and a system. Following the methodology established by national and international project management organizations, this course introduces the processes, skills, techniques and software tools required to effectively manage projects. Examples of online learning, systems implementation and similar types of projects in education and training contexts illustrate the application of project management techniques in educational technology.

Component(s):
Lecture

Notes:

- Students who have received credit for ETEC 572 may not take this course for credit.

ETEC 673 Consulting Skills for Educational Technologists (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ETEC 650.

Description:
This course prepares educational technologists to adopt the consultative approach that is central to the profession. Specifically, this course develops the key competencies needed in consultative work in schools, higher education, workplace learning groups and non-

profit organizations. These competencies include building awareness of the client organization, supporting clients in making effective choices, developing agreements with clients that include the scope, schedule and budget of projects, managing project communications and changes throughout a project, and interacting effectively with clients.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under an ETEC 693 number may not take this course for credit.
- Students who have received credit for ETEC 573 or for this topic under an ETEC 593 number may not take this course for credit.

ETEC 781 Internship I (3 credits)

Prerequisite/Corequisite:
The following course or equivalent must be completed previously: ETEC 650. The following courses or equivalent must be completed previously or concurrently: ETEC 613, ETEC 640, ETEC 651, ETEC 671 or ETEC 673. The following course or equivalent must be completed concurrently: ETEC 782.

Description:
The internship normally consists of an extensive activity (the first 135 of 675 hours) in the university or in the field. The experience varies with the interests of the student and the opportunities available. The objectives are: to apply skills developed through program courses; to gain experience with the practice of educational technology; and to integrate the subjects studied separately into a holistic understanding of the field. Students may need to complete French or other language training when undertaking an internship or a field experience. Language competencies are determined and assessed by the hosting organization; it is the student's responsibility to attain the competency level required.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.

ETEC 782 Internship II (3 credits)

Prerequisite/Corequisite:
The following course or equivalent must be completed previously: ETEC 650. The following courses or equivalent must be completed previously or concurrently: ETEC 613, ETEC 640, ETEC 651, ETEC 671 or ETEC 673. The following course or equivalent must be completed concurrently: ETEC 781.

Description:
The internship normally consists of an extensive activity (the second 135 of 675 hours) in the university or in the field. The experience varies with the interests of the student and the opportunities available. The objectives are: to apply skills developed through program courses; to gain experience with the practice of educational technology; and to integrate the subjects studied separately into a holistic

understanding of the field. Students may need to complete French or other language training when undertaking an internship or a field experience. Language competencies are determined and assessed by the hosting organization; it is the student's responsibility to attain the competency level required.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.

ETEC 783 Internship III (3 credits)

Prerequisite/Corequisite:
The following course or equivalent must be completed previously or concurrently: ETEC 782. The following course must be completed concurrently: ETEC 784 or ETEC 785.

Description:
The internship normally consists of an extensive activity (the third 135 of 675 hours) in the university or in the field. The experience varies with the interests of the student and the opportunities available. The objectives are: to apply skills developed through program courses; to gain experience with the practice of educational technology; and to integrate the subjects studied separately into a holistic understanding of the field. Students may need to complete French or other language training when undertaking an internship or a field experience. Language competencies are determined and assessed by the hosting organization; it is the student's responsibility to attain the competency level required.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.

ETEC 784 Internship IV (3 credits)

Prerequisite/Corequisite:
The following course or equivalent must be completed previously or concurrently: ETEC 783. The following course or equivalent must be completed concurrently: ETEC 785.

Description:
The internship normally consists of an extensive activity (the fourth 135 of 675 hours) in the university or in the field. The experience varies with the interests of the student and the opportunities available. The objectives are: to apply skills developed through program courses; to gain experience with the practice of educational technology; and to integrate the subjects studied separately into a holistic understanding of the field. Students may need to complete French or other language training when undertaking an internship or a field experience. Language competencies are determined and assessed by the hosting organization; it is the student's responsibility to

attain the competency level required.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.

ETEC 785 Internship V (3 credits)

Prerequisite/Corequisite:
The following courses or equivalent must be completed concurrently: ETEC 783 or ETEC 784.

Description:
The internship normally consists of an extensive activity (the fifth 135 of 675 hours) in the university or in the field. The experience varies with the interests of the student and the opportunities available. The objectives are: to apply skills developed through program courses; to gain experience with the practice of educational technology; and to integrate the subjects studied separately into a holistic understanding of the field. Students may need to complete French or other language training when undertaking an internship or a field experience. Language competencies are determined and assessed by the hosting organization; it is the student's responsibility to attain the competency level required.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.

ETEC 792 Internship Report (3 credits)

Description:
The internship report will address both the scholarly/academic and professional practice aspects of Educational Technology. Typically 10,000 or more words in length, the report should contain at least two parts: 1. A detailed description of the Internship II activities, utilizing a case study format; including relevant references to the literature. 2. A conclusions and recommendations section which outlines what was learned, what one would do differently, and what potentially generalizable principles one might recommend to fellow educational technologists encountering similar circumstances. The student completes the internship by disseminating the experiences detailed in the report in a public presentation.

Component(s):
Practicum/Internship/Work Term

ETEC 795 Thesis Proposal (3 credits)

Prerequisite/Corequisite:
Students must have completed all core and elective courses before beginning their thesis proposal.

Description:
Under the supervision of their thesis supervisor, students in this course write a proposal for their thesis or thesis equivalent research. The thesis is a basic research project; the thesis equivalent is an applied or practical project (such as an online learning resource or evaluation of an educational product) conducted with the rigour of a formal research project. The proposal explains the purpose of the study and its importance to the field of educational technology, situates the study within the peer-reviewed literature in the field, and describes the methodology that is followed to conduct the study. The proposal is submitted to the supervisory committee for approval. After receiving approval for the thesis, students submit the ethics protocol to receive approval from the Research Ethics Board (REB) to launch the study.

Component(s):
Thesis Research

ETEC 796 Thesis or Thesis-Equivalent (15 credits)

Prerequisite/Corequisite:
Students must have an approved proposal and an approval from the Research Ethics Board (REB).

Description:
Under the supervision of their thesis supervisor, students in this course complete the thesis or thesis equivalent according to the methodology approved in the proposal. This includes collecting and analyzing data, and writing the results and conclusions. The completed project has an oral defence, in which the student presents their work to the supervisory committee for approval.

Component(s):
Thesis Research or Thesis Equivalent

Elective Courses

The department currently offers the courses listed below. The pattern of courses offered may vary from year to year. Detailed information on the courses offered in a given year is available from the department.

ETEC 607 Philosophical Issues in Educational Research (3 credits)

(Also listed as ESTU 601 and ADIP 501.)

Description:
There are a number of important philosophical questions that lie behind the everyday practice of education research. The questions include: What does it mean to say that research in education is “scientific”? Is science (and, by extension, educational research) really value neutral and objective? What kinds of education research should count as legitimate? In the first part of the course, various definitions of science, for example, those of Karl Popper and Thomas Kuhn, and some influential critiques of the scientific enterprise

are examined. In the second part of the course, some of the ongoing debates about appropriate research methods in education are analyzed.

Component(s):
Lecture

Notes:

- Students who have received credit for ESTU 601 may not take this course for credit.
- Students who have received credit for ADIP 501 or ETEC 507 or may not take this course for credit.

ETEC 634 Communicating Instructional Content (3 credits)

Description:
This course develops the professional instructional writing skills needed by educational technologists. Specifically, it emphasizes basic instructional writing skills and how to adjust messages for particular audiences and media, and different genres (formats) of instructional materials.

Component(s):
Lecture

Notes:

- Students who have received credit for ETEC 535/ETEC 635 may not take this course for credit. Students who have received credit for this topic under an ETEC 593/ ETEC 693 number may not take this course for credit.

ETEC 636 Evaluation in Education and Training (3 credits)

Description:
This course prepares students to evaluate people, products, and programs. Students explore both the theory and practice of formative evaluation (to foster ongoing development and improvement) and summative evaluation (to assess whether the object being evaluated met the stated goals).

Component(s):
Lecture

Notes:

- Students who have received credit for ETEC 536 may not take this course for credit.

ETEC 637 Educational Gaming and Modelling (3 credits)

Description:
This course examines the potential of games and modelling in educational settings. Students explore the concepts and theories underlying the use of games in teaching and their other instructional contexts, including the use of games to motivate learners. To do so, students design educational games and models, such as board games, role-playing and video games.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for ETEC 537 may not take this course for credit.

ETEC 652 Knowledge Management (3 credits)

Description:
Knowledge management is about how organizations ensure that the right knowledge is available to the right individuals at the right time. This course explores that subject. Topics may include the life cycle of knowledge (creation, dissemination, utilization, evaluation); links to related areas of study such as the learning organization, the agile organization, the virtual organization, taxonomy development and classification; and technologies used to manage knowledge and institutional content, such as document management and content management, and advanced technologies for search and retrieval.

Component(s):
Lecture

Notes:

- Students who have received credit for ETEC 667 may not take this course for credit.
- Students who have received credit for ETEC 552 may not take this course for credit.

ETEC 660 Introduction to Educational Computing (3 credits)

Description:
This course explores current trends in software applications used in (1) schools, colleges and university-based educational environments and (2) industrial and business settings. Topics may include a brief history of computer applications in education, applications of learning theory and cognitive science to the design of learning technologies, online learning design issues and strategies, learning technology standards and meta-data tagging, open-source learning technologies, learning content management systems and learning management systems and content management strategies, mobile learning and blended learning strategies. To apply what they have learned, students complete problem-solving activities and case studies, and provide written critiques of current literature in the field.

Component(s):
Lecture

Notes:

- Students who have received credit for ETEC 560 may not take this course for credit.

ETEC 662 Social Technologies and the Sociocultural Aspects of Learning (3 credits)

Description:
This course explores how digital technologies with social affordances have affected the ways people learn, live, work and play. Topics may include the potential of social technologies for learning; the theoretical and conceptual underpinnings of social learning in online communities including those rooted in cognitive psychology and sociology; and applications of these technologies, such as working with distributed teams and digital habitats in which niche online communities thrive.

Component(s):
Lecture

Notes:

- Students who have received credit for ETEC 562 may not take this course for credit.

ETEC 665 Introduction to Digital Media in Education (3 credits)

Component(s):
Lecture; Laboratory

ETEC 666 Contemporary Use of Simulation in Training and Education (3 credits)

Description:
Simulations are models of reality that allow people to interact in immersive, controlled and safe environments which make them ideal (though complex) instructional tools. This course explores the development and use of simulations in education and training. Topics may include theoretical foundations of simulations, such as underlying educational theories, the nature of simulations, and their classification; and the process and methodologies for developing educational simulations. This course also provides students with opportunities to use specialized software to plan and create a simple educational simulation.

Component(s):
Lecture

Notes:

- Students who have received credit for ETEC 566 may not take this course for credit.

ETEC 669 Designing and Developing Interactive Instruction (3 credits)

Description:

Learning experience design focuses on how users go through instructional materials. This course explores advanced principles of learning experience, user experience, and user interface design as informed by the learning sciences, instructional design, and design thinking. It does so within the context of planning, designing, and developing moderately complex digital learning programs and materials, to be delivered on computers, mobile devices or by other digital means. In this course, students learn to use graphic design software, authoring software, and learning and content management systems employed in producing these materials.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for ETEC 569 may not take this course for credit.

ETEC 676 Human Resources Development (3 credits)

Description:
Human Resources is a function in organizations that manages relationships with workers.This course examines both divisions of the field: Human Resources Management, which addresses labour planning, performance management, labour relations, and compensation and benefits; and Human Resources Development, which addresses career planning, succession planning, organization development, and training and development. Through case studies and other approaches, this course addresses topics such as strategic human resources, human capital theory, organizational learning, competencies, employee engagement, performance appraisal, development, onboarding,
and the impact of the Fourth Industrial Revolution on relationships between employers and workers.

Component(s):
Lecture

Notes:

- Students who have received credit for ETEC 576 may not take this course for credit.

ETEC 681 Fundamentals of Distance Education (3 credits)

Description:

Distance education refers to the administration and teaching methods, and related technology for teaching students who are not physically in the same location as the instructor. This course prepares students to make informed decisions about the strategies and technologies to employ in a distance education context. Specifically, this course reviews the theoretical, organizational, instructional, and technical aspects of distance education as well as the major issues in designing and implementing remote instructional programs.

Component(s):

Lecture

Notes:

- Students who have received credit for ETEC 581 may not take this course for credit.

ETEC 690 Field Experience (3 credits)

Prerequisite/Corequisite:

Students must be enrolled in the Educational Technology MA with Thesis option or the Instructional Technology Graduate Diploma. Furthermore, students must have completed all core courses of the program before starting this field experience.

Description:

This course provides students with the opportunity to participate in a supervised field experience (placement) of 135 hours: a short internship. Placements occur in industry, higher education, government organizations, NGOs, and schools and involve responsibilities such as designing and developing instructional materials, producing these materials, needs assessment, supporting technology integration into teaching, or other types of participation in projects. Students must submit a brief reflection report after completing the work responsibilities of the placement.

Component(s):

Practicum/Internship/Work Term

Notes:

- Students who have received credit for ETEC 590 may not take this course for credit.

ETEC 691 Advanced Readings and Research in Educational Technology I (3 credits)

Description:

This course provides students with an opportunity to explore a particular aspect of educational technology or complete a complex project in the field under the supervision of a faculty member and that is outside the scope of an existing course. Students propose a topic of study or project to a potential course supervisor along with a work plan and reading list.

Component(s):

Thesis Research

ETEC 692 Advanced Readings and Research in Educational Technology II (3 credits)

Description:
This course provides students with a second opportunity to explore a particular aspect of educational technology or complete a complex project in the field under the supervision of a faculty member and that is outside the scope of an existing course. Students propose a topic of study or project to a potential course supervisor along with a work plan and a reading list. The project must differ from projects undertaken by the student for course ETEC 691.

Component(s):
Research

ETEC 693 Special Issues in Educational Technology (3 credits)

Description:
This course provides students with an opportunity to explore emerging issues in the field of educational technology and other special topics. Topics may include emerging technologies, evolving practices, socio-economic issues, and theoretical perspectives.

Component(s):
Lecture

Notes:

- Students who have received credit for ETEC 593 may not take this course for credit.

Education PhD Courses

Required Courses

EDUC 806 Quantitative Methods (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ETEC 641 or CHST 605. If prerequisites are not satisfied, permission of instructor is required.

Description:
This course builds students' capacity to conduct quantitative research in education at the doctoral level. It covers all topics related to experimental and quasi-experimental design and the application of univariate statistics to educational research problems. In doing so, the course addresses the basic theory underlying quantitative approaches, selection of an initial research question, the types of questions best suited to quantitative methods, managing and analyzing quantitative data, external and internal validity, reliability and objectivity. This course also provides opportunities to analyze quantitative data.

Component(s):

Seminar; Laboratory

Notes:

- Students who have received credit for EDUC 802 may not take this course for credit.

EDUC 807 Qualitative Methods (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: ESTU 615 or CHST 606. If prerequisites are not satisfied, permission of instructor is required.

Description:

This course builds students' capacity to conduct qualitative research in education at the doctoral level. It covers various types of qualitative research, such as ethnography, case studies, content analysis, and naturalistic observation. In doing so, the course addresses the basic theory and philosophy underlying qualitative approaches, selection of an initial research question, the types of questions best suited to qualitative methods, managing qualitative data, qualitative data analysis, and assuring the credibility and trustworthiness of qualitative data.

Component(s):

Seminar; Laboratory

Notes:

- Students who have received credit for EDUC 802 may not take this course for credit.

EDUC 808 Reporting Research (3 credits)

Description:

This course prepares students to report their research to various stakeholders of educational research, including funding agencies, other researchers, journal editors, policy makers, and the public. Students prepare various research-related documents, and provide peer reviews.

Component(s):

Seminar

Notes:

- Students who have received credit for EDUC 800 may not take this course for credit.

EDUC 809 Advanced Issues in Education (3 credits)

Description:

This seminar explores one or more complex issues of education that has implications for Applied Linguistics, Child Studies, Educational Studies, and Educational Technology. During the course, students explore the research and popular literature on the topic, critically examine the epistemological, sociological, and theoretical bases of the literature, and relate the lessons learned to their own proposed research projects.

Component(s):
Seminar

Notes:

- Students who have received credit for EDUC 801 or EDUC 805 may not take this course for credit.

EDUC 890 Comprehensive Examination (12 credits)

Description:
Each candidate must successfully complete the comprehensive examination before being admitted to candidacy for the degree. The comprehensive consists of a written and oral examination that tests the candidate on both general and area specific research. After successfully completing the comprehensive examination, the student is admitted to candidacy for the degree.

Component(s):
Thesis Research

EDUC 891 Doctoral Proposal (9 credits)

Description:
The proposal is accepted only after the student is admitted to candidacy.

Component(s):
Thesis Research

EDUC 895 Doctoral Dissertation (48 credits)

Description:
A doctoral thesis is expected to make an original contribution to knowledge, and be presented in acceptable literary form.

Component(s):
Thesis Research

Area Tutorials

The content and format of an area tutorial may vary from year to year, depending on the number of students and the availability of faculty members. All area tutorials involve directed reading, research, seminar presentations, and discussion sessions on selected topics within that problem area.

Area tutorials offered by the Department of Education fall into the following categories:

Educational Technology Area Tutorials
Child Studies Area Tutorials
Educational Studies Area Tutorials
Applied Linguistics Area Tutorials

Child Studies Area Tutorials

EDUC 825 Child Studies Area Tutorial (3 credits)

Description:
Area tutorials in Child Studies are selected from topics that focus on children's typical and atypical learning and development (e.g., social or cognitive development), in a variety of settings and contexts (e.g., early childhood environments, schools, after-school programs, recreation and community settings, families and peers, special education environments).

Component(s):
Tutorial

EDUC 826 Child Studies Area Tutorial (3 credits)

Description:
Area tutorials in Child Studies are selected from topics that focus on children's typical and atypical learning and development (e.g., social or cognitive development), in a variety of settings and contexts (e.g., early childhood environments, schools, after-school programs, recreation and community settings, families and peers, special education environments).

Component(s):
Tutorial

EDUC 827 Child Studies Area Tutorial (3 credits)

Description:
Area tutorials in Child Studies are selected from topics that focus on children's typical and atypical learning and development (e.g., social or cognitive development), in a variety of settings and contexts (e.g., early childhood environments, schools, after-school programs, recreation and community settings, families and peers, special education environments).

Component(s):
Tutorial

Educational Technology Area Tutorials

EDUC 810 Educational Technology Area Tutorial (3 credits)

Description:
Area tutorials in Educational Technology are selected from topics related to the application of technology to education and training. These include Human Performance Technology (HPT); theory, development and research in educational media; distance education; educational cybernetics, systems analysis and design; and human resources development.

Component(s):
Tutorial

EDUC 811 Educational Technology Area Tutorial (3 credits)

Description:
Area tutorials in Educational Technology are selected from topics related to the application of technology to education and training. These include Human Performance Technology (HPT); theory, development and research in educational media; distance education; educational cybernetics, systems analysis and design; and human resources development.

Component(s):
Tutorial

EDUC 812 Educational Technology Area Tutorial (3 credits)

Description:
Area tutorials in Educational Technology are selected from topics related to the application of technology to education and training. These include Human Performance Technology (HPT); theory, development and research in educational media; distance education; educational cybernetics, systems analysis and design; and human resources development.

Component(s):
Tutorial

Educational Studies Area Tutorials

EDUC 840 Educational Studies Area Tutorial (3 credits)

Description:
Area tutorials in Educational Studies consist of philosophical, historical, social psychological, sociological and anthropological aspects of education locally, nationally, and internationally. These may include, but are not limited to, comparative study or early childhood education thought and practice, multicultural education, policy and practice in diverse school settings, curriculum issues and indigenous knowledge, mediated learning environments, curriculum theory, moral education, issues of difference in sexual orientation,

class, race, and gender.

Component(s):
Tutorial

EDUC 841 Educational Studies Area Tutorial (3 credits)

Description:
Area tutorials in Educational Studies consist of philosophical, historical, social psychological, sociological and anthropological aspects of education locally, nationally, and internationally. These may include, but are not limited to, comparative study or early childhood education thought and practice, multicultural education, policy and practice in diverse school settings, curriculum issues and indigenous knowledge, mediated learning environments, curriculum theory, moral education, issues of difference in sexual orientation, class, race, and gender.

Component(s):
Tutorial

EDUC 842 Educational Studies Area Tutorial (3 credits)

Description:
Area tutorials in Educational Studies consist of philosophical, historical, social psychological, sociological and anthropological aspects of education locally, nationally, and internationally. These may include, but are not limited to, comparative study or early childhood education thought and practice, multicultural education, policy and practice in diverse school settings, curriculum issues and indigenous knowledge, mediated learning environments, curriculum theory, moral education, issues of difference in sexual orientation, class, race, and gender.

Component(s):
Tutorial

Applied Linguistics Area Tutorials

EDUC 855 Advanced Topics in Second Language Phonology (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses historical or contemporary issues in theory and research related to second language phonology.

Component(s):
Tutorial

EDUC 856 Advanced Topics in Second Language Acquisition (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses historical or contemporary issues in second language acquisition theory and research.

Component(s):
Tutorial

EDUC 857 Advanced Topics in Second Language Writing (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses historical or contemporary issues in second language acquisition writing theory and research.

Component(s):
Tutorial

EDUC 858 Advanced Topics in Speech Learning (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses historical or contemporary issues in second language speech learning.

Component(s):
Tutorial

EDUC 859 Advanced Topics in Language Assessment (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses historical or contemporary issues in language assessment theory and research.

Component(s):
Tutorial

EDUC 860 Advanced Topics in Second Language Pedagogy((3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses historical or contemporary approaches to second language pedagogy and research.

Component(s):
Tutorial

EDUC 861 Advanced Topics in Applied Linguistics (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses issues in applied linguistics that fall outside the content focus of other
tutorials.

EDUC 862 Pragmatic Aspects of Bi/Multilingualism and Language Learning (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses historical or contemporary issues in pragmatic aspects of bilingualism, multilingualism, or language learning.

Component(s):
Tutorial

EDUC 863 Psycholinguistic Aspects of Bi/Multilingualism and Language Learning (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses historical or contemporary issues in psycholinguistic aspects of bilingualism, multilingualism, or language learning.

EDUC 864 Sociolinguistic Aspects of Bi/Multilingualism and Language Learning (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses historical or contemporary issues in sociolinguistic aspects of bilingualism, multilingualism, or language learning.

Component(s):
Tutorial

EDUC 865 Technology in Second Language Learning and Teaching (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses historical or contemporary issues in the use of technology in second language learning, teaching, or assessment.

EDUC 866 Advanced Research Methods in Applied Linguistics (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses topics in qualitative or quantitative research related to paradigms, designs, methods, tools, or statistical tests.

Component(s):
Tutorial

EDUC 867 Corpus-Based Methods and Research in Applied Linguistics (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses issues related to the creation and use of language corpora for applied linguistics research, such as web-based analytic tools, data management, and statistical tests.

Component(s):
Tutorial

EDUC 868 Individual Differences in Language Learning (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses historical or contemporary issues related to the role of cognitive, social, or affective learner characteristics in second language use, learning, teaching, or assessment.

Component(s):
Tutorial

EDUC 869 Contemporary Issues in Applied Linguistics Research (3 credits)

Description:
This advanced topics course is presented in tutorial format and addresses contemporary issues in the field of applied linguistics as they relate to current social, educational, or political trends.

Component(s):

Tutorial

English Courses

English MA and PhD Courses

Topic Areas

English graduate courses are offered in the following topic areas:

Special Topics in English Literature
Studies in Early English Literature and Medieval Literature
Studies in Renaissance Literature
Studies in Restoration and Eighteenth Century Literature
Studies in Nineteenth Century Literature
Studies in Twentieth Century Literature
Studies in Poetry
Studies in Drama
Studies in Fiction
Studies in the History of Ideas
Studies in Shakespeare
Studies in American Literature
Studies in Canadian Literature
Studies in Post-Colonial Literature
Studies in Literary Criticism
Seminars in Creative Writing: Prose Fiction, Poetry and Drama
Studies in Selected Areas

Please note that in courses where a Special Subject is listed, this Special Subject is a subtitle, and may change from year to year.

Consequently, when students repeat a course number in subsequent years, but with a different subtitle, they are in fact engaged in a course with completely different content. The credit value attached to a course number may likewise change from year to year.

Note: Courses in Creative Writing are normally available only to students admitted into the Creative Writing option. Occasional exceptions in special circumstances are made for entry by students in the academic options. Such entrants require the prior approval of the Graduate Program Director. Independent (non-degree) students require the permission of the Graduate Program Director to take a course and they must possess the same kind and quality of academic background and preparation as required of students admitted to the MA program.

Special Topics in English Literature

ENGL 601 Special Topics in English Literature (3 credits)

Component(s):
Seminar

ENGL 602 Special Topics in English Literature (3 credits)

Component(s):
Seminar

ENGL 603 Special Topics in English Literature (3 credits)

Component(s):
Seminar

ENGL 604 Special Topics in English Literature (3 credits)

Component(s):
Seminar

Studies in Early English Literature and Medieval Literature

ENGL 605 Studies in Early English Literature and Medieval Literature (3 credits)

Component(s):
Seminar

ENGL 606 Studies in Early English Literature and Medieval Literature (3 credits)

Component(s):
Seminar

ENGL 607 Studies in Early English Literature and Medieval Literature (3 credits)

Component(s):
Seminar

ENGL 608 Studies in Early English Literature and Medieval Literature (3 credits)

Component(s):
Seminar

Studies in Renaissance Literature

ENGL 610 Studies in Renaissance Literature (3 credits)

Component(s):
Seminar

ENGL 611 Studies in Renaissance Literature (3 credits)

Component(s):
Seminar

ENGL 612 Studies in Renaissance Literature (3 credits)

Component(s):
Seminar

Studies in Restoration and Eighteenth Century Literature

ENGL 615 Studies in Restoration and Eighteenth Century Literature (3 credits)

Component(s):
Seminar

ENGL 616 Studies in Restoration and Eighteenth Century Literature (3 credits)

Component(s):
Seminar

ENGL 619 Studies in Restoration and Eighteenth Century Literature (3 credits)

Component(s):
Seminar

Studies in Nineteenth Century Literature

ENGL 620 Studies in Nineteenth Century Literature (3 credits)

Component(s):
Seminar

ENGL 621 Studies in Nineteenth Century Literature (3 credits)

Component(s):
Seminar

ENGL 622 Studies in Nineteenth Century Literature (3 credits)

Component(s):
Lecture

ENGL 623 Studies in Nineteenth Century Literature (3 credits)

Component(s):
Lecture

ENGL 624 Studies in Nineteenth Century Literature (3 credits)

Component(s):
Seminar

Studies in Twentieth Century Literature

ENGL 625 Studies in Twentieth Century Literature (3 credits)

Component(s):
Seminar

ENGL 626 Studies in Twentieth Century Literature (3 credits)

Component(s):
Seminar

ENGL 627 Studies in Twentieth Century Literature (3 credits)

Component(s):
Seminar

ENGL 628 Studies in Twentieth Century Literature (3 credits)

Component(s):
Seminar

ENGL 629 Studies in Twentieth Century Literature (3 credits)

Component(s):
Seminar

Studies in Poetry

ENGL 630 Studies in Poetry (3 credits)

Component(s):
Seminar

ENGL 631 Studies in Poetry (3 credits)

Component(s):
Seminar

Studies in Drama

ENGL 635 Studies in Drama (3 credits)

Component(s):

Seminar

ENGL 636 Studies in Drama (3 credits)

Component(s):
Lecture

ENGL 637 Studies in Drama (3 credits)

Component(s):
Lecture

Studies in Fiction

ENGL 640 Studies in Fiction (3 credits)

Component(s):
Seminar

ENGL 641 Studies in Fiction (3 credits)

Component(s):
Seminar

Studies in the History of Ideas

ENGL 645 Studies in the History of Ideas (3 credits)

Component(s):
Seminar

ENGL 646 Studies in the History of Ideas (3 credits)

Component(s):
Seminar

ENGL 648 Studies in the History of Ideas (3 credits)

Component(s):
Seminar

Studies in Shakespeare

ENGL 650 Studies in Shakespeare (3 credits)

Component(s):
Seminar

ENGL 652 Studies in Shakespeare (3 credits)

Component(s):
Seminar

Studies in American Literature

ENGL 655 Studies in American Literature (3 credits)

Component(s):
Seminar

ENGL 656 Studies in American Literature (3 credits)

Component(s):
Seminar

ENGL 657 Studies in American Literature (3 credits)

Component(s):
Seminar

ENGL 658 Studies in American Literature (3 credits)

Component(s):
Lecture

ENGL 659 Studies in American Literature (3 credits)

Component(s):
Seminar

Studies in Canadian Literature

ENGL 660 Studies in Canadian Literature (3 credits)

Component(s):
Lecture

ENGL 662 Studies in Canadian Literature (3 credits)

Component(s):
Seminar

ENGL 663 Studies in Canadian Literature (3 credits)

Component(s):
Seminar

ENGL 664 Studies in Canadian Literature (3 credits)

Component(s):
Seminar

Studies in Post-Colonial Literature

ENGL 665 Studies in Post-Colonial Literature (3 credits)

Component(s):
Seminar

ENGL 667 Studies in Post-Colonial Literature (3 credits)

Component(s):
Seminar

Studies in Literary Criticism

ENGL 668 Studies in Literary Criticism (3 credits)

Component(s):
Seminar

ENGL 669 Studies in Literary Criticism (3 credits)

Component(s):
Seminar

Seminars in Creative Writing: Prose Fiction, Poetry and Drama

ENGL 670 Seminar in Creative Writing: Prose Fiction, Poetry and Drama (3 credits)

Component(s):
Seminar

ENGL 671 Seminar in Creative Writing: Prose Fiction, Poetry and Drama (3 credits)

Component(s):
Seminar

ENGL 672 Seminar in Creative Writing: Prose Fiction, Poetry and Drama (6 credits)

Component(s):
Seminar

ENGL 673 Seminar in Creative Writing: Prose Fiction, Poetry and Drama (3 credits)

Component(s):
Seminar

ENGL 674 Seminar in Creative Writing: Prose Fiction, Poetry and Drama (3 credits)

Component(s):
Seminar

Studies in Selected Areas

ENGL 678 Selected Area I (3 credits)

Description:
Creative Writing Tutorial.

Component(s):
Tutorial; Independent Study

ENGL 679 Selected Area II (6 credits)

Description:
Creative Writing Tutorial. The Creative Writing tutorials may be elected only by students in Option C. They are designed to accommodate candidates whose genre (e.g., poetry or drama) is not offered during a given academic year. Candidates wishing to enrol in ENGL 678 or 679 must submit a request to the Graduate Committee. Approval will in part depend upon the availability of resources and whether the Graduate Committee deems it beneficial for the student to undertake a tutorial course rather than a regularly scheduled course. Tutorial courses will be considered only exceptionally and for very able students.

Component(s):
Tutorial; Independent Study

ENGL 685 Selected Area III (3 credits)

ENGL 687 Selected Area IV (3 credits)

Description:
Bibliography and Research Methods in English. An introduction to scholarly research in English.

ENGL 688 Selected Area V (3 credits)

Description:
Reading Course. After completing at least a third of the course credits (transfer credits excluded), a student may submit a request to the Graduate Committee for permission to take up to 6 credits in a reading course to be provided through a tutorial arrangement. A reading course will be permitted only when the proposed general subject area has not been available during the span of the student's program and where the Graduate Committee is satisfied that it is beneficial for the student to take a reading course rather than a regularly scheduled graduate course. Reading courses are approved only exceptionally and only students who have demonstrated a capacity for independent work and a very high calibre of academic performance will be considered.

Component(s):
Independent Study

ENGL 689 Selected Area VI (3 credits)

Description:
Reading Course. After completing at least a third of the course credits (transfer credits excluded), a student may submit a request to the Graduate Committee for permission to take up to 6 credits in a reading course to be provided through a tutorial arrangement. A reading course will be permitted only when the proposed general subject area has not been available during the span of the student's program and where the Graduate Committee is satisfied that it is beneficial for the student to take a reading course rather than a regularly scheduled graduate course. Reading courses are approved only exceptionally and only students who have demonstrated a capacity for independent work and a very high calibre of academic performance will be considered.

Component(s):
Independent Study

English MA Thesis, Bibliography and Research Essay Courses

ENGL 690 Thesis (24 credits)

Description:
A candidate electing the thesis option must satisfy the Graduate Committee of the viability of the topic and secure a member of the department to supervise the thesis. The candidate's thesis is orally defended. For specific information concerning thesis proposals a student should consult the departmental guidelines.

Component(s):
Thesis Research

Notes:

- The English Department cannot guarantee the availability of a supervisor on every possible topic. University regulations regarding the thesis may be found in the thesis section of this calendar.

ENGL 692 Creative Writing Thesis (21 credits)

Description:
The Graduate Committee must approve a proposal for a creative writing thesis of book length.

Component(s):
Thesis Research

Notes:

- Assessed on a pass/fail basis

ENGL 693 Bibliography (6 credits)

Component(s):
Thesis Research (Anotated Bibliography)

Notes:

- Assessed on a pass/fail basis.

ENGL 694 Research Thesis (18 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGL 693.

Description:
A research thesis of approximately 10,000 words is supervised by a member of the department and assessed by another faculty member acting as reader.

Component(s):
Thesis Research

Notes:

- Assessed on a pass/fail basis

English PhD Core Courses

ENGL 800 Pro-Seminar I: Theory (3 credits)

Description:
This course is an advanced survey of literary theory, considering those thinkers whose work has been particularly influential for the discipline's understanding of the nature and function of literature and its production. Figures to be studied may include Aristotle, Sidney, Nietzsche, Althusser, Lacan, Derrida, Barthes, Foucault, Deleuze, Irigaray, McLuhan, Badiou, Zizek, and Kristeva.

Component(s):
Seminar

ENGL 801 Pro-Seminar II: Methodology (3 credits)

Description:
This course considers literary research under the aegis of a current or emergent methodological paradigm in the field e.g. Book History, Media Studies, Digital Humanities, Poetics, Psychoanalysis, Affect Theory, or Neuroaesthetics.

Component(s):
Seminar

ENGL 802 Professional Development Workshops (1 credits)

Description:
The Department holds a series of workshops with the aim of introducing doctoral candidates to pertinent research, teaching, and professional expectations and enhancing career development. In order to graduate, all doctoral candidates must attend these workshops before the end of the sixth term. Master's students are also strongly encouraged to attend the relevant sessions since they are a constitutive component of graduate formation. If a student has attended a given workshop during his/her master's degree, he/she is exempted from that workshop.

Component(s):
Workshop

Notes:

- The course is graded on a pass/fail basis.
- Workshops are led by faculty members and organized by the Graduate Program Director on a monthly basis in anticipation both of key dates during the PhD program (e.g. external grant application due dates) and the future professional life of the doctoral candidate (e.g. academic job interviews).

English PhD Thesis and Field Examination Courses

ENGL 890 Thesis Proposal (6 credits)

Description:
Students are admitted to candidacy for the PhD upon acceptance by their advisory committee of the written thesis proposal and its successful defence. Students typically complete one Major Field Examination in an area related to the thesis topic. The oral examination of the written thesis proposal normally takes place in the term following the writing of the second Field Examination. The written proposal is normally 4,500 words in length with an additional five pages for a bibliography.

Component(s):
Thesis Research

Notes:

- Assessed on a pass/fail basis

ENGL 891 The Major Field Examination I (6 credits)

Description:
This course focuses broadly on the candidate’s primary area of specialization, covering major authors, genres, and issues and the pertinent canonical texts therein, in order to consolidate the necessary background knowledge for advanced literary research and teaching at the university level. In the examination, candidates are expected to demonstrate comprehensive knowledge of the designated field as well as an original, critical understanding of the field and its constitutive texts. The Department has established reading lists in nine broad areas of specialization that cover a variety of periods, nations, and subjects. These basic lists may be modified to suit the interests of individual candidates. A substitution of 20 per cent is permitted for all reading lists for the purposes of tailoring the lists to the interests of the student. Such substitutions are to be determined by agreement between the student and the student's supervisor and are subject to approval by the Graduate Program Committee. Field Examinations Reading Lists: Medieval Literature Renaissance Literature Restoration and 18th-Century Literature 19th-Century Literature 20th-Century and Contemporary Literature American Literature Canadian Literature Post-Colonial Literature Literary Criticism/Theory

Component(s):
Thesis Research

Notes:

- The exams are assessed by the supervisor on a pass/fail basis in consultation with at least one other faculty member in the Department with related expertise in the area. In the case of a "fail," the student has until the end of the tenth term to obtain a "pass," whether in the initial or another Major Field or configuration of the Sub-Fields exam.

- Each exam comprises five questions. Students are required to respond to three questions. Questions are distributed one week in advance of the scheduled examination. Each exam is held on campus for four hours without notes or other additional materials. The supervisor and at least one other faculty member in a relevant field adjudicate each Field Examination.

ENGL 892 The Sub-Field Examination II (6 credits)

Description:

This course is designed to cultivate a more specific area of inquiry that may include a body of literary texts in combination with readings in a particular set of methodological or theoretical problems to the end of developing a viable doctoral topic and composing a thesis proposal. The Sub-Field Examination list is established by the candidate in consultation with the doctoral supervisor and comprises approximately 60 items that are seen as directly relevant to the field in which the dissertation is oriented. It is divided into three sections: 1) approximately 20 literary texts; 2) approximately 20 theoretical/methodological texts; 3) approximately 20 texts drawn from adjacent and/or ancillary fields. By “text,” it means the number of poems or articles deemed by field specialists as sufficiently representative of an author's work or period. A text cannot appear twice on any of the lists, including that of the Major Field. The lists and texts are not exhaustive, but are meant to provide the student with the necessary initiation to sub-fields that help to clarify the direction and goals of the dissertation.

Component(s):

Thesis Research

Notes:

- The exams are assessed by the supervisor on a pass/fail basis in consultation with at least one other faculty member in the Department with related expertise in the area. In the case of a "fail," the student has until the end of the tenth term to obtain a "pass," whether in the initial or another Major Field or configuration of the Sub-Fields exam.
- Each exam comprises five questions. Students are required to respond to three questions. Questions are distributed one week in advance of the scheduled examination. Each exam is held on campus for four hours without notes or other additional materials. The supervisor and at least one other faculty member in a relevant field adjudicate each Field Examination.

ENGL 895 Thesis Research (53 credits)

Description:

Doctoral students must submit a thesis based on their research and defend it in an oral examination.

Component(s):

Thesis Research

English PhD Independent Study Courses

ENGL 803 Independent Study in English Literature (3 credits)

ENGL 804 Independent Study in English Literature (3 credits)

Études françaises, cours

Microprogramme en didactique et linguistique pour l'enseignement du français langue seconde, certificat, cours

FRAA 500 Didactique du français langue étrangère et seconde (3 credits)

Description:
Ce séminaire vise à présenter les principaux courants en didactique du français langue étrangère et seconde et leurs fondements théoriques. En se basant sur les théories de l'apprentissage, les étudiants analysent en profondeur chacun des principaux courants didactiques en apprenant à discerner ce qui les différencie, les rapproche ou les oppose. Ce séminaire leur offre les outils nécessaires pour faire un choix didactique éclairé en fonction de l'apprentissage visé. Ils y ont l'occasion d'animer un atelier de conversation auprès d'apprenants allophones pour pouvoir faire des liens entre leurs nouveaux acquis et la réalité de l'enseignement-apprentissage, et ce, sous la supervision d'un professeur.

Component(s):
Seminar

FRAA 501 Théories linguistiques pour l'apprentissage et l'enseignement des langues (3 credits)

Description:
Ce séminaire amène les étudiants à faire le lien entre les théories linguistiques et les applications à l'enseignement et à l'apprentissage du français langue seconde. Il permet aux étudiants de jeter un regard critique sur les principaux courants en linguistique appliquée à l'enseignement des langues et de se sensibiliser à des questions fondamentales qui se posent du point de vue de l'enseignant et de l'apprenant respectivement.

Component(s):
Seminar

FRAA 502 Technologies de l'information et de la communication (TIC) et enseignement du FLS (3 credits)

Description:
Ce séminaire vise à transmettre aux étudiants l'ensemble des compétences nécessaires à la réalisation de ressources interactives tirant pleinement profit des potentialités offertes par les TIC (apprentissage collaboratif, multimédia, parcours d'apprentissage personnalisés, etc.). Au moyen de la conception de matériel pédagogique en ligne (exerciciels, plateformes de formation ouverte et à distance), les étudiants voient comment optimiser l'apport des TIC à l'acquisition de la langue cible ou à l'évaluation des acquis; intégrer les fondements théoriques et pratiques acquis dans les autres séminaires et répondre pleinement aux besoins des apprenants (que ces besoins soient formatifs ou sommatifs) tout en évitant les écueils didactiques ou techniques que la réalisation de ce type de ressources peut comporter.

Component(s):
Seminar

FRAA 510 Stage d'observation (3 credits)

Description:
Ce cours permet aux étudiants de réaliser leur stage d'observation en enseignement du français langue seconde dans le cadre d'un cours universitaire. Au cours de ce stage, les étudiants analysent les moyens pédagogiques utilisés au niveau universitaire. Les stagiaires observent les activités d'enseignement, l'organisation et la prise en charge de la classe et ils font un retour critique sur leur expérience pratique à partir des observations faites dans le milieu de stage.

Component(s):
Seminar

FRAA 522 Questions actuelles en linguistique française (3 credits)

Co-listé : FRAA 422.

Description:
Ce cours propose l'étude d'un sujet particulier du domaine de la linguistique. Plus précisément, ce cours aborde des questions qui peuvent être rattachées au domaine de l'énonciation, de la sociolinguistique, des politiques linguistiques, du traitement automatique du langage ou d'autres domaines de recherche en linguistique. Des présentations théoriques, des ateliers d'observation ou des exercices d'application permettent aux étudiants de mieux cerner la problématique abordée.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FRAA 422 ne peuvent obtenir de crédits pour ce cours.

Technologies de la traduction, certificate; et Traduction, diplôme, cours

FRAA 523 Rédaction II (3 credits)

Description:
Ce cours vise l'approfondissement des compétences rédactionnelles par l'apprentissage de techniques de recherche documentaire et de synthese textuelle, et par l'écriture de textes combinant ces techniques comme le compte rendu critique, le dossier ou le texte de vulgarisation.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FRAN 503 ne peuvent obtenir de crédits pour ce cours.

FRAA 532 Écriture pour le Web (3 credits)

Prerequisite/Corequisite:
Autorisation de la direction du certificat.

Description:
Ce cours vise à familiariser l'étudiante ou l'étudiant aux techniques d'écriture pour le Web et aux technologies associées à ce média. Il permettra de mieux comprendre ce que l'hypertexte et l'écrit sur support numérique impliquent du point de vue du traitement de l'information et des spécificités linguistiques et ergonomiques. Il vise à initier l'étudiante et l'étudiant à la création et à la traduction de pages et de sites Web.

Component(s):
Lecture

FRAA 598 Étude avancée d'un sujet particulier (3 credits)

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi un sujet particulier en FRAN 598 ne peuvent obtenir de crédits pour le même sujet en FRAA 598.

FTRA 500 Méthodologie générale de la recherche en traduction (3 credits)

Co-listé : FTRA 600.

Description:
Ce séminaire examine les principales méthodes et approches appliquées à l'étude de la traduction. Il trace l'émergence de la discipline autonome de la traductologie ainsi que ses liens actuels avec d'autres sciences humaines et sociales. À l'issue du séminaire, l'étudiante ou l'étudiant a une vue d'ensemble de la théorisation en traduction, ce qui lui permet de se spécialiser en connaissance de cause dans un domaine spécifique, en élaborant une problématique particulière cohérente avec les visées du programme et en empruntant les outils de recherche pertinents.

Component(s):
Seminar

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 600 ne peuvent obtenir de crédits pour ce cours.

FTRA 501 Traduction littéraire du français à l'anglais (A) (3 credits)

Co-listé : FTRA 635.

Description:
Sensibilisation aux problèmes spécifiques à la traduction littéraire. Travaux pratiques : traduction de textes de genres variés.

Component(s):
Lecture

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 635 ne peuvent obtenir de crédits pour ce cours.

FTRA 504 Traduction littéraire de l'anglais au français (F) (3 credits)

Co-listé : FTRA 634.

Description:
Sensibilisation aux problèmes spécifiques à la traduction littéraire. Travaux pratiques : traduction de textes de genres variés.

Component(s):
Lecture

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée
- Les étudiantes et étudiants qui ont suivi FTRA 634 ne peuvent obtenir de crédits pour ce cours.

FTRA 513 Traduction scientifique et technique du français à l'anglais (A) (3 credits)

Co-listé : FTRA 623.

Description:
Initiation aux différents problèmes de la traduction dans les langues de spécialité scientifiques et techniques (français-anglais). Le cours est divisé en deux ou trois parties, chaque partie correspondant à un domaine spécialisé en traduction.

Component(s):
Lecture

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 623 ne peuvent obtenir de crédits pour ce cours.

FTRA 514 Traduction scientifique et technique de l'anglais au français (F) (3 credits)

Co-listé : FTRA 624.

Description:
Initiation aux différents problèmes de la traduction dans les langues de spécialité scientifiques et techniques (anglais-français). Le cours est divisé en deux ou trois parties, chaque partie correspondant à un domaine spécialisé en traduction.

Component(s):
Lecture

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée
- Les étudiantes et étudiants qui ont suivi FTRA 624 ne peuvent obtenir de crédits pour ce cours.

FTRA 515 Traduction commerciale et juridique du français à l'anglais (A) (3 credits)

Co-listé : FTRA 625.

Description:
Initiation aux différents problèmes de la traduction dans les langues de spécialité de l'administration, du commerce et du droit (français-anglais). Le cours est divisé en parties, chaque partie correspondant à un domaine spécialisé en traduction.

Component(s):
Lecture

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 625 ne peuvent obtenir de crédits pour ce cours.

FTRA 516 Traduction commerciale et juridique de l'anglais au français (F) (3 credits)

Co-listé : FTRA 626.

Description:
Initiation aux différents problèmes de la traduction dans les langues de spécialité de l'administration, du commerce et du droit (anglais-

français). Le cours est divisé en parties, chaque partie correspondant à un domaine spécialisé.

Component(s):
Lecture

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 626 ne peuvent obtenir de crédits pour ce cours.

FTRA 517 Stage de formation du français à l'anglais I (A) (3 credits)

Component(s):
Practicum/Internship/Work Term

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
-

FTRA 519 Stage de formation du français à l'anglais II (A) (3 credits)

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.

FTRA 520 Stage de formation (F) (6 credits)

Component(s):
Practicum/Internship/Work Term

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée

FTRA 521 Stage de formation (A) (6 credits)

Component(s):

Practicum/Internship/Work Term

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.

FTRA 522 Stage de formation de l'anglais au français I (F) (3 credits)

Component(s):
Practicum/Internship/Work Term

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée

FTRA 526 Stage de formation de l'anglais au français II (F) (3 credits)

Component(s):
Practicum/Internship/Work Term

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée.

FTRA 527 Travaux dirigés (A) (3 credits)

Component(s):
Tutorial

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.

FTRA 528 Travaux dirigés (F) (3 credits)

Component(s):
Tutorial

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée.

FTRA 529 Révision et correction en traduction (A) (3 credits)

Co-listé : FTRA 629.

Description:

: Ce cours aborde les différentes méthodes de révision et de correction de textes rédigés ou traduits en anglais; il sensibilise les étudiantes et étudiants aux aspects humains et techniques du métier de réviseure et de réviseur; on touche aussi aux problèmes de l'évaluation de la qualité des traductions.

Component(s):

Lecture

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 629 ne peuvent obtenir de crédits pour ce cours.

FTRA 530 Révision et correction en traduction (F) (3 credits)

Co-listé : FTRA 630.

Description:

Ce cours aborde les différentes méthodes de révision et de correction de textes rédigés ou traduits en français; il sensibilise les étudiantes et étudiants aux aspects humains et techniques du métier de réviseure et de réviseur; on touche aussi aux problèmes de l'évaluation de la qualité des traductions.

Component(s):

Lecture

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 630 ne peuvent obtenir de crédits pour ce cours.

FTRA 531 Initiation à la traduction générale (A) (3 credits)

Co-listé : FTRA 631.

Description:

Ce cours vise à initier les étudiantes et étudiants aux outils notionnels et linguistiques nécessaires pour traduire efficacement des

textes d'ordre général. Il leur présente aussi les étapes du processus de la traduction et les familiarise avec les outils de travail de la traduction.

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 631 ne peuvent obtenir de crédits pour ce cours.

FTRA 532 Initiation à la traduction générale (F) (3 credits)

Co-listé : FTRA 632.

Description:
Ce cours vise à initier les étudiantes et étudiants aux outils notionnels et linguistiques nécessaires pour traduire efficacement des textes d'ordre général. Il leur présente aussi les étapes du processus de la traduction et les familiarise avec les outils de travail de la traduction.

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 632 ne peuvent obtenir de crédits pour ce cours.

FTRA 533 Aspects théoriques et pratiques de la terminologie (3 credits)

Co-listé : FTRA 633.

Description:
Principes généraux de la terminologie; distinction entre langue générale et langues de spécialité; rapport entre documentation et terminologie; analyse terminologique; terminologie de traduction; supports terminographiques traditionnels et/ou informatisés; terminologie et aménagement linguistique.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 633 ne peuvent obtenir de crédits pour ce cours.

FTRA 534 Terminologie et mondialisation (3 credits)

Co-listé : FTRA 611.

Prerequisite/Corequisite:
FTRA 533 ou l'équivalent.

Description:
Ce cours porte sur certains points fins en terminologie et en terminographie modernes : synonymie, marques sociolinguistiques, néonymie, normalisation et internationalisation. Il traite spécifiquement du rôle de la terminologie dans la gestion de l'information unilingue et multilingue dans les entreprises et dans les organismes nationaux et internationaux. L'aspect pratique prend, entre autres, la forme de rédaction de rapports de recherche et l'utilisation d'outils terminotiques.

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 611 ne peuvent obtenir de crédits pour ce cours.

FTRA 536 Informatique et traduction (F/A) (3 credits)

Co-listé : FTRA 636.

Description:
Ce cours porte sur la langue de l'informatique, la théorie et les concepts fondamentaux qui s'y rapportent. Il comporte des exercices de traduction et une initiation aux outils informatisés pour les traducteurs : Internet, bases de données, systèmes de traduction assistée, utilitaires.

Component(s):
Lecture

Notes:

- (F/A) ce cours peut être offert en français ou en anglais.
- Les étudiantes et étudiants qui ont suivi FTRA 636 ne peuvent obtenir de crédits pour ce cours.

FTRA 538 Initiation au sous-titrage (3 credits)

Co-listé : FTRA 638.

Description:
Ce cours a pour but d'initier les étudiantes et étudiants à la traduction audiovisuelle, en particulier au sous-titrage. Il comporte un volet théorique, avec lectures et analyses, ainsi qu'un volet pratique où sont traités les principes et les conventions du sous-titrage, les aspects techniques et les genres cinématographiques. Sont aussi abordées la traduction de la voix hors-champ et les techniques d'accessibilité tels le sous-titrage pour malentendants et l'audiodescription.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 638 ne peuvent obtenir de crédits pour ce cours.

FTRA 539 Courants contemporains en traductologie (3 credits)

Co-listé : FTRA 601.

Description:
Ce séminaire aborde les tendances qui marquent l'actualité de la recherche en traductologie. Sont explorées les nouvelles pratiques de la traduction et l'évolution des cadres conceptuels qui permettent de penser le transfert linguistique et culturel.

Component(s):
Seminar

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 601 ne peuvent obtenir de crédits pour ce cours.

FTRA 540 Lecture critique de traductions (3 credits)

Co-listé : FTRA 610.

Description:
Ce séminaire propose une étude critique des traductions de l'anglais au français et du français à l'anglais effectuées à travers l'histoire, en tenant compte de la diversité des visées esthétiques, des différentes stratégies de traduction, ainsi que des contraintes sociopolitiques ou institutionnelles. L'accent est mis sur l'étude des « grandes traductions » dans les cultures d'expression anglaise et française.

Component(s):
Seminar

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 610 ne peuvent obtenir de crédits pour ce cours.

FTRA 542 Traduction avancée en sciences humaines et sociales (F) (3 credits)

Component(s):
Seminar

Notes:

- (F) Ce séminaire a l'anglais comme langue de départ et le français comme langue d'arrivée.

FTRA 543 Advanced Translation in Social Sciences and the Humanities (A) (3 credits)

Co-listé : FTRA 612 ou FTRA 613.

Description:

Ce séminaire pratique et théorique aborde plusieurs domaines des sciences humaines et sociales, notamment la sociologie, la psychanalyse, la théorie féministe. L'étudiante ou l'étudiant produit un commentaire analytique sur ses choix de traduction en s'efforçant de théoriser sa pratique de traducteur-traductrice.

Component(s):

Seminar

Notes:

- (A) Ce séminaire a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 612 ou FTRA 613 ne peuvent obtenir de crédits pour ce cours.

FTRA 544 Traduction littéraire avancée (F) (3 credits)

Component(s):

Lecture

Notes:

- (F) Ce séminaire a l'anglais comme langue de départ et le français comme langue d'arrivée.

FTRA 545 Advanced Literary Translation (A) (3 credits)

Co-listé : FTRA 614 ou FTRA 615.

Description:
Ce séminaire pratique et théorique analyse, à partir de théories littéraires, contemporaines, un échantillon de textes à traduire. L'étudiante ou l'étudiant produit un commentaire analytique sur ses choix de traduction en s'efforçant de théoriser sa pratique de traducteurtraductrice.

Component(s):
Seminar

Notes:

- (A) Ce séminaire a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 614 ou FTRA 615 ne peuvent obtenir de crédits pour ce cours.

FTRA 547 Traduction économique du français à l'anglais (A) (3 credits)

Co-listé : FTRA 647.

Description:
Sensibilisation aux problèmes que pose dans le domaine de l'économie la traduction du français à l'anglais.

Component(s):
Lecture

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 647 ne peuvent obtenir de crédits pour ce cours.

FTRA 548 Traduction économique de l'anglais au français (F) (3 credits)

Co-listé : FTRA 648.

Description:
Sensibilisation aux problèmes que pose dans le domaine de l'économie la traduction de l'anglais au français.

Component(s):
Lecture

Notes:

- (A) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée.

- Les étudiantes et étudiants qui ont suivi FTRA 648 ne peuvent obtenir de crédits pour ce cours.

FTRA 549 Sociologie de la traduction littéraire (3 credits)

Description:
Ce séminaire applique la méthode sociologique à la traduction des genres et des discours de la littérature. Peuvent être étudiés des corpus divers (roman, poésie, théâtre, par exemple) traduits de l'anglais en français et du français en anglais. Seront examinées, par exemple, les théories de Pierre Bourdieu, de Niklas Luhmann ou de Bruno Latour. Le séminaire est l'occasion d'une remise en question des notions de source et de cible en traduction.

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 541, FTRA 611 ou FTRA 619 ne peuvent obtenir de crédits pour ce cours.

FTRA 552 Traduction assistée par ordinateur (TAO) et post édition (3 credits)

Co-listé : **FTRA 652**

Prerequisite/Corequisite:
FTRA 536 pour le diplôme en traduction.

FTRA 553 Contextes socio-politiques de la traduction (3 credits)

Co-listé : FTRA 603.

Description:
Ce séminaire examine les situations sociales et politiques qui influent sur le travail pratique des traducteurs et la réception des traductions. Sont étudiés, par exemple, le cas des États bilingues ou multilingues, l'évolution des politiques linguistiques et leurs répercussions sur la traduction, les rapports entre les langues majoritaires et minoritaires, les effets de la migration sur les sociétés de plus en plus hybrides et les marchés nouveaux de la traduction.

Component(s):
Seminar

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 550 ou FTRA 603 ne peuvent obtenir de crédits pour ce cours.

FTRA 555 Gestion de projets (3 credits)

Co-listé : FTRA 655.

Description:
Ce cours traite de la gestion des projets de traduction/localisation multilingues, depuis la création de l'offre de services, jusqu'au contrôle de la qualité et de la livraison, en passant par la résolution de problèmes et la gestion en situation de crise. Il comprend une partie théorique et des mises en situation. Les étudiantes et étudiants se familiarisent avec l'évaluation des ressources (humaines et matérielles) nécessaires pour exécuter le travail, l'élaboration d'échéanciers et le suivi du budget. Ils apprennent à gérer les ressources affectées aux projets afin de pouvoir respecter le mandat qui leur est confié.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 655 ne peuvent obtenir de crédits pour ce cours.

FTRA 556 Programmation en localisation (3 credits)

Prerequisite/Corequisite:
FTRA 552 ou FTRA 558 .

Description:
L'étudiante et l'étudiant se familiarisent dans ce cours avec l'environnement informatique : ils se familiarisent avec l'intégration et le partage des ressources d'un (et avec un) logiciel (d'une page Internet) et avec les restrictions liées au système d'exploitation; ils ont un aperçu du fonctionnement d'un logiciel (rédaction, compilation, exécution), d'un programme informatique : variables, données, contrôle; d'un langage de programmation : structure, manipulation des chaînes d'entrée et de sortie, du code « source » d'un programme informatique (ou site Internet) à localiser, des chaînes (des messages) à traduire.

FTRA 558 Pratique de la localisation (3 credits)

Co-listé : FTRA 658.

Description:
L'étudiante et l'étudiant apprennent dans ce cours les stratégies de localisation et les processus de localisation : la localisation de logiciels et la localisation de sites Web; les acteurs dans les projets de localisation; la situation et le travail du traducteur dans les projets de localisation; les types de fichiers à localiser : ressources, code source, fichiers d'aide, guides imprimés, matériel marketing; les types de logiciels localisés : logiciels système, logiciels de gestion, logiciels clients, logiciels multimédia, logiciels Web.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 658 ne peuvent obtenir de crédits pour ce cours.

FTRA 559 Stage en gestion de projet (6 credits)

Component(s):
Practicum/Internship/Work Term

FTRA 560 Stage en gestion de projet I (3 credits)

Component(s):
Practicum/Internship/Work Term

FTRA 561 Stage en gestion de projet II (3 credits)

Component(s):
Practicum/Internship/Work Term

FTRA 568 Web, technologies, traduction : théories et critiques (3 credits)

Co-listé : FTRA 668.

Description:
Ce séminaire examine de façon critique les pratiques contemporaines issues de la mondialisation et du monde numérique affectant les technologies, le Web multilingue et la traduction. Entre autres aspects, sont examinés les enjeux culturels, sociaux, techniques et idéologiques. Le séminaire met l'accent sur la traduction et la communication mondiale.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 668 ne peuvent obtenir de crédits pour ce cours.

FTRA 598 Étude avancée d'un sujet particulier (3 credits)

Littératures de langue française MA, séminaires

FLIT 600 Méthodologie (3 credits)

Description:
Dans ce séminaire, l'étudiante ou l'étudiant apprend à formuler des problématiques et à discuter d'hypothèses de recherche. Les étudiants se familiarisent également avec les outils de recherche bibliographique imprimés et informatiques, les règles de présentation de la bibliographie et les principaux types de productions écrites liées à la critique littéraire.

Component(s):
Seminar

FLIT 601 Théories littéraires (3 credits)

Description:
Ce séminaire permet à l'étudiante ou à l'étudiant d'approfondir sa connaissance de diverses théories littéraires, en tenant compte des approches les plus classiques comme des plus récentes. Le séminaire vise également à explorer le passage de la théorie à la pratique dans l'analyse des textes.

Component(s):
Seminar

FLIT 605 Littérature et discours (3 credits)

Description:
Ce séminaire s'intéresse à l'interaction dynamique de la littérature avec les diverses formes de discours en circulation dans l'espace social.

FLIT 614 Littérature et technologies (3 credits)

Description:
Dans ce séminaire, on réfléchit à l'impact des technologies sur la littérature. On y étudie les formes littéraires et artistiques nées de l'évolution récente des dispositifs de lecture et d'écriture, ainsi que les modes de diffusion inédits qui en découlent.

Component(s):
Seminar

FLIT 617 Textes et images (3 credits)

Description:
Ce séminaire est, pour l'étudiante ou l'étudiant, l'occasion d'étudier les rapports entretenus entre texte et l'image entendus dans leur sens large. Dans ce séminaire seront abordés des textes qui incorporent le visuel ou qui en dépendent, comme les textes littéraires illustrés et les bandes-dessinées.

Component(s):
Seminar

FLIT 619 Littérature et société (3 credits)

Description:
Ce séminaire est, pour l'étudiante ou l'étudiant, l'occasion de réfléchir à la sociologie littéraire, aux rapports entre l'oeuvre et son public ou encore aux divers contextes de production, de diffusion, de réception ou de conservation du texte littéraire.

Component(s):
Seminar

FLIT 620 Tutorat en littérature (3 credits)

Component(s):
Tutorial

FLIT 621 Tutorat en littérature (3 credits)

Component(s):
Tutorial

FLIT 622 Littérature, langue et traduction (3 credits)

Co-listé : FTRA 622.

Description:
Le séminaire avancé de littérature, langue, et traduction vise à parfaire les connaissances de l'étudiante et de l'étudiant dans un domaine littéraire, traductologique ou linguistique spécifique envisagé sous un angle théorique, historique ou social. Pour animer ce séminaire, il sera fait appel aux professeurs du département en fonction de leur spécialité. Le sujet particulier du séminaire sera annoncé chaque fois que le séminaire sera donné.

Notes:

- Les étudiantes et étudiants qui ont suivi FLIT 616 ou FTRA 616 ou FTRA 622 ne peuvent obtenir de crédits pour ce cours.

FLIT 630 Séminaire avancé en littératures francophones (3 credits)

Description:
Ce séminaire avancé vise à parfaire les connaissances de l'étudiante et de l'étudiant par une analyse en profondeur d'une thématique et d'un corpus particulier des littératures francophones

Component(s):
Seminar

FLIT 640 Séminaire avancé en littérature québécoise (3 credits)

Description:
Ce séminaire avancé vise à parfaire les connaissances de l'étudiante et de l'étudiant par une analyse en profondeur d'une thématique et d'un corpus particulier de la littérature québécoise.

Component(s):
Seminar

FLIT 650 Séminaire avancé en écritures contemporaines (3 credits)

Description:
Ce séminaire avancé vise à parfaire les connaissances de l'étudiante et de l'étudiant par une analyse en profondeur d'une thématique et d'un corpus particulier des écritures contemporaines.

Component(s):
Seminar

FLIT 660 Séminaire avancé en littérature française (3 credits)

Description:
Ce séminaire avancé vise à parfaire les connaissances de l'étudiante et de l'étudiant par une analyse en profondeur d'une thématique et d'un corpus particulier de la littérature française.

Component(s):
Seminar

Mémoire

FLIT 690 Présentation du mémoire (Option A) (6 credits)

Component(s):
Lecture

FLIT 691 Présentation du mémoire incluant une réalisation médiatique (Option B) (6 credits)

Component(s):
Lecture

FLIT 692 Mémoire (Option A) (6 credits)

Component(s):
Lecture

FLIT 693 Mémoire incluant une réalisation médiatique (Option B) (6 credits)

Component(s):
Thesis Research

Traductologie MA, cours et séminaires

FTRA 600 Méthodologie générale de la recherche en traduction (3 credits)

Co-listé : FTRA 500.

Description:
Ce séminaire examine les principales méthodes et approches appliquées à l'étude de la traduction. Il trace l'émergence de la discipline autonome de la traductologie ainsi que ses liens actuels avec d'autres sciences humaines et sociales. À l'issue du séminaire, l'étudiante ou l'étudiant a une vue d'ensemble de la théorisation en traduction, ce qui lui permet de se spécialiser en connaissance de cause dans un domaine spécifique, en élaborant une problématique particulière cohérente avec les visées du programme et en empruntant les outils de recherche pertinents.

Component(s):
Seminar

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 500 ne peuvent obtenir de crédits pour ce cours.

FTRA 601 Courants contemporains en traductologie (3 credits)

Co-listé : FTRA 539.

Description:

Ce séminaire aborde les tendances qui marquent l'actualité de la recherche en traductologie. Sont explorées les nouvelles pratiques de la traduction et l'évolution des cadres conceptuels qui permettent de penser le transfert linguistique et culturel.

Component(s):

Seminar

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 539 ne peuvent obtenir de crédits pour ce cours.

FTRA 602 Histoire générale de la traduction (3 credits)

Description:

Ce séminaire est une introduction à l'histoire générale de la traduction, notamment (mais non exclusivement) en Occident, ainsi qu'à l'évolution des approches historiographiques. Une vue en coupe est présentée à travers des thématiques permettant de dégager le rôle historique joué par les traducteurs comme acteurs sociaux proches des pouvoirs en place ou critiques de ces pouvoirs. L'accent est mis sur la créativité des traducteurs à certaines époques clés de contacts entre des cultures. Le séminaire peut aborder certains domaines précis de la traduction et des travaux menés à des périodes historiques et dans des aires géographiques données.

Component(s):

Seminar

FTRA 603 Contextes socio-politiques de la traduction (3 credits)

Co-listé : FTRA 553.

Description:
Ce séminaire examine les situations sociales et politiques qui influent sur le travail pratique des traducteurs et la réception des traductions. Sont étudiés, par exemple,le cas des États bilingues ou multilingues, l'évolution des politiques linguistiques et leurs répercussions sur la traduction, les rapports entre les langues majoritaires et minoritaires, les effets de la migration sur les sociétés de plus en plus hybrides et les marchés nouveaux de la traduction.

Component(s):
Seminar

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 553 ou FTRA 550 ne peuvent obtenir de crédits pour ce cours.

FTRA 610 Lecture critique de traductions (3 credits)

Co-listé : FTRA 540.

Description:
Ce séminaire propose une étude critique des traductions de l'anglais au français et du français à l'anglais effectuées à travers l'histoire, en tenant compte de la diversité des visées esthétiques, des différentes stratégies de traduction, ainsi que des contraintes socio-politiques ou institutionnelles. L'accent est mis sur l'étude des « grandes traductions » dans les cultures d'expression anglaise et française.

Component(s):
Seminar

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 540 ne peuvent obtenir de crédits pour ce cours.

FTRA 611 Terminologie et mondialisation (3 credits)

Co-listé : FTRA 534.

Prerequisite/Corequisite:
FTRA 533.

Description:
Le cours porte sur certains points fins en terminologie et en terminographie modernes : synonymie, marques sociolinguistiques, néonymie, normalisation et internationalisation. Il traite spécifiquement du rôle de la terminologie dans la gestion de l'information unilingue et multi-lingue dans les entreprises et dans les organismes nationaux et internationaux. L'aspect pratique prend, entre

autres, la forme de rédaction de rapports de recherche et l'utilisation d'outils terminotiques. (F/A).

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 534 ne peuvent obtenir de crédits pour ce cours.

FTRA 612 Traduction avancée en sciences humaines et sociales (F) (3 credits)

Component(s):
Seminar

Notes:

- (F) Le séminaire FTRA 612 a l'anglais comme langue de départ et le français comme langue d'arrivée.

FTRA 613 Advanced translation in social sciences and the humanities (A) (3 credits)

Co-listé : FTRA 542 ou FTRA 543.

Description:
Ce séminaire pratique et théorique aborde plusieurs domaines des sciences humaines et sociales, notamment la sociologie, la psychanalyse, la théorie féministe. L'étudiante ou l'étudiant produit un commentaire analytique sur ses choix de traduction en s'efforçant de théoriser sa pratique de traducteur-traductrice.

Component(s):
Seminar

Notes:

- (A) Le séminaire FTRA 613 a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 542 ou FTRA 543 ne peuvent obtenir de crédits pour ce cours.

FTRA 614 Traduction littéraire avancée (F) (3 credits)

Component(s):
Lecture

Notes:

- (F) Le séminaire FTRA 614 a l'anglais comme langue de départ et le français comme langue d'arrivée.

FTRA 615 Advanced literary translation (A) (3 credits)

Co-listé : FTRA 544 ou FTRA 545.

Description:
Ce séminaire pratique et théorique analyse, à partir de théories littéraires contemporaines, un échantillon de textes à traduire. L'étudiante ou l'étudiant produit un commentaire analytique sur ses choix de traduction en s'efforçant de théoriser sa pratique de traducteur-traductrice.

Component(s):
Seminar

Notes:

- (A) Ce séminaire FTRA a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 544 ou FTRA 545 ne peuvent obtenir de crédits pour ce cours.

FTRA 622 Littérature, langue, traduction (3 credits)

Co-listé : FLIT 622.

Description:
Le séminaire avancé de littérature, langue et traduction vise à parfaire les connaissances de l'étudiante et de l'étudiant dans un domaine littéraire, traductologique ou linguistique spécifique envisagé sous un angle théorique, historique ou social. Pour animer ce séminaire, il sera fait appel aux professeurs du département en fonction de leur spécialité. Le sujet particulier du séminaire sera annoncé chaque fois que le séminaire sera donné.

Component(s):
Seminar

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 616, FLIT 616 ou FLIT 622 ne peuvent obtenir de crédits pour ce cours.

FTRA 623 Traduction scientifique et technique du français à l'anglais (A) (3 credits)

Co-listé : FTRA 513.

Description:
Initiation aux différents problèmes de la traduction dans les langues de spécialité scientifiques et techniques (français-anglais). Le cours est divisé en deux ou trois parties, chaque partie correspondant à un domaine spécialisé en traduction.

Component(s):
Lecture

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 513 ne peuvent obtenir de crédits pour ce cours.

FTRA 624 Traduction scientifique et technique de l'anglais au français (F) (3 credits)

Co-listé : FTRA 514.

Description:
Initiation aux différents problèmes de la traduction dans les langues de spécialité scientifiques et techniques (anglais-français). Le cours est divisé en deux ou trois parties, chaque partie correspondant à un domaine spécialisé en traduction.

Component(s):
Lecture

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 514 ne peuvent obtenir de crédits pour ce cours.

FTRA 625 Traduction commerciale et juridique du français à l'anglais (A) (3 credits)

Co-listé : FTRA 515.

Description:
Initiation aux différents problèmes de la traduction dans les langues de spécialité de l'administration, du commerce et du droit (français-anglais). Le cours est divisé en parties, chaque partie correspondant à un domaine spécialisé en traduction.

Component(s):
Lecture

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 515 ne peuvent obtenir de crédits pour ce cours.

FTRA 626 Traduction commerciale et juridique de l'anglais au français (F) (3 credits)

Co-listé : FTRA 516.

Description:
Initiation aux différents problèmes de la traduction dans les langues de spécialité de l'administration, du commerce et du droit (anglais-français). Le cours est divisé en parties, chaque partie correspondant à un domaine spécialisé.

Component(s):
Lecture

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 516 ne peuvent obtenir de crédits pour ce cours.

FTRA 629 Révision et correction en traduction (A) (3 credits)

Co-listé : FTRA 529.

Description:
Ce cours aborde les différentes méthodes de révision et de correction de textes rédigés ou traduits en anglais; il sensibilise les étudiantes et étudiants aux aspects humains et techniques du métier de réviseure et de réviseur; on touche aussi aux problèmes de l'évaluation de la qualité des traductions.

Component(s):
Lecture

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 529 ne peuvent obtenir de crédits pour ce cours.

FTRA 630 Révision et correction en traduction (F) (3 credits)

Co-listé : FTRA 530.

Description:
Ce cours aborde les différentes méthodes de révision et de correction de textes rédigés ou traduits en français; il sensibilise les étudiantes et étudiants aux aspects humains et techniques du métier de réviseure et de réviseur; on touche aussi aux problèmes de l'évaluation de la qualité des traductions.

Component(s):
Lecture

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 530 ne peuvent obtenir de crédits pour ce cours.

FTRA 631 Initiation à la traduction générale (A) (3 credits)

Co-listé : FTRA 531.

Description:
Ce cours vise à initier les étudiantes et étudiants aux outils notionnels et linguistiques nécessaires pour traduire efficacement des textes d'ordre général. Il leur présente aussi les étapes du processus de la traduction et les familiarise avec les outils de travail de la traduction.

Component(s):
Lecture

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 531 ne peuvent obtenir de crédits pour ce cours.

FTRA 632 Initiation à la traduction générale (F) (3 credits)

Co-listé : FTRA 532.

Description:
Ce cours vise à initier les étudiantes et étudiants aux outils notionnels et linguistiques nécessaires pour traduire efficacement des textes d'ordre général. Il leur présente aussi les étapes du processus de la traduction et les familiarise avec les outils de travail de la traduction.

Component(s):
Lecture

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 532 ne peuvent obtenir de crédits pour ce cours.

FTRA 633 Aspects théoriques et pratiques de la terminologie (3 credits)

Co-listé : FTRA 533.

Description:
Principes généraux de la terminologie; distinction entre langue générale et langues de spécialité; rapport entre documentation et terminologie; analyse terminologique; terminologie de traduction; supports terminographiques traditionnels et/ou informatisés; terminologie et aménagement linguistique.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 533 ne peuvent obtenir de crédits pour ce cours.

FTRA 634 Traduction littéraire de l'anglais au français (F) (3 credits)

Co-listé : FTRA 504.

Description:
Sensibilisation aux problèmes spécifiques à la traduction littéraire. Travaux pratiques : traduction de textes de genres variés.

Component(s):
Lecture

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 504 ne peuvent obtenir de crédits pour ce cours.

FTRA 635 Traduction littéraire du français à l'anglais (A) (3 credits)

Co-listé : FTRA 501.

Description:
Sensibilisation aux problèmes spécifiques à la traduction littéraire. Travaux pratiques : traduction de textes de genres variés.

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 501 ne peuvent obtenir de crédits pour ce cours.

FTRA 636 Informatique et traduction (F/A) (3 credits)

Co-listé : FTRA 536.

Description:
Ce cours porte sur la langue de l'informatique, la théorie et les concepts fondamentaux qui s'y rapportent. Il comporte des exercices de traduction et une initiation aux outils informatisés pour les traducteurs : Internet, bases de données, systèmes de traduction assistée,utilitaires. (F/A)

Component(s):
Lecture

Notes:

- (F/A) Ce cours peut être offert en français ou en anglais.
- Les étudiantes et étudiants qui ont suivi FTRA 536 ne peuvent obtenir de crédits pour ce cours.

FTRA 638 Initiation au sous-titrage (3 credits)

Co-listé : FTRA 538.

Description:
Ce cours a pour but d'initier les étudiantes et étudiants à la traduction audiovisuelle, en particulier au sous-titrage. Il comporte un volet théorique, avec lectures et analyses, ainsi qu'un volet pratique où sont traités les principes et les conventions du sous-titrage, les aspects techniques et les genres cinématographiques. Sont aussi abordées la traduction de la voix hors-champ et les techniques d'accessibilité tels le sous-titrage pour malentendants et l'audiodescription.

Component(s):
Lecture

FTRA 647 Traduction économique du français à l'anglais (A) (3 credits)

Co-listé : FTRA 547.

Description:
Sensibilisation aux problèmes que pose dans le domaine de l'économie la traduction du français à l'anglais.

Component(s):
Lecture

Notes:

- (A) Ce cours a le français comme langue de départ et l'anglais comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 547 ne peuvent obtenir de crédits pour ce cours.

FTRA 648 Traduction économique de l'anglais au français (F) (3 credits)

Co-listé : FTRA 548.

Description:
Sensibilisation aux problèmes que pose dans le domaine de l'économie la traduction de l'anglais au français.

Component(s):
Lecture

Notes:

- (F) Ce cours a l'anglais comme langue de départ et le français comme langue d'arrivée.
- Les étudiantes et étudiants qui ont suivi FTRA 548 ne peuvent obtenir de crédits pour ce cours.

FTRA 652 Traduction assistée par ordinateur (TAO) et post édition (3 credits)

Co-listé : FTRA 552.

Prerequisite/Corequisite:
FTRA 536 pour le diplôme en traduction.

Description:
Ce cours permet d'analyser les aspects morphologiques, lexicaux, syntaxiques et sémantiques des systèmes de traduction automatisée. L'étudiante et l'étudiant apprennent à appliquer les concepts analysés à un système commercialisé. Ils font des exercices simples de programmation portant sur des problèmes linguistiques; ils utilisent des outils de gestion et de traduction pour le matériel à localiser à l'aide de logiciels de localisation, de logiciels de terminologie et de mémoires de traduction. Ils évaluent et apprennent à réviser les sorties d'un système de traduction automatique, tout en mettant l'accent sur le contrôle de la qualité.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 552 ne peuvent obtenir de crédits pour ce cours.

FTRA 655 Gestion de projets (3 credits)

Co-listé : FTRA 555.

Description:
Ce cours traite de la gestion des projets de traduction/localisation multilingues, depuis la création de l'offre de services, jusqu'au contrôle de la qualité et de la livraison, en passant par la résolution de problèmes et la gestion en situation de crise. Il comprend une partie théorique et des mises en situation. Les étudiantes et étudiants se familiarisent avec l'évaluation des ressources (humaines et matérielles) nécessaires pour exécuter le travail, l'élaboration d'échéanciers et le suivi du budget. Ils apprennent à gérer les ressources affectées aux projets afin de pouvoir respecter le mandat qui leur est confié.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 555 ne peuvent obtenir de crédits pour ce cours.

FTRA 658 Pratique de la localisation (3 credits)

Co-listé : FTRA 558.

Description:
L'étudiante et l'étudiant apprennent dans ce cours les stratégies de localisation et les processus de localisation; la localisation de logiciels et de localisation de sites Web; les acteurs dans les projets de localisation; la situation et le travail du traducteur dans les projets de localisation; les types de fichiers à localiser : ressources, code source, fichiers d'aide, guides imprimés, matériel marketing; les types de logiciels localisés : logiciels système, logiciels de gestion, logiciels client, logiciels multimédia, logiciels Web.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 558 ne peuvent obtenir de crédits pour ce cours.

FTRA 668 Web, technologies, traduction : théories et critiques (3 credits)

Co-listé : FTRA 568.

Description:
Ce séminaire examine de façon critique les pratiques contemporaines issues de la mondialisation et du monde numérique affectant les technologies, le Web multilingue et la traduction. Entre autres aspects, sont examinés les enjeux culturels, sociaux, techniques et idéologiques. Le séminaire met l'accent sur la traduction et la communication mondiale.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants qui ont suivi FTRA 568 ne peuvent obtenir de crédits pour ce cours.

FTRA 680 Tutorat en littérature (F) (3 credits)

Component(s):

Tutorial

Notes:

- Ce cours est offert en français

FTRA 681 Tutorial in Literature (A) (3 credits)

Component(s):
Tutorial

Notes:

- (A) This course is offered in English.

FTRA 682 Tutorat en traduction (F) (3 credits)

Component(s):
Tutorial

Notes:

- Ce cours est offert en français

FTRA 683 Tutorial in translation (A) (3 credits)

Component(s):
Tutorial

Notes:

- (A) This course is offered in English.

FTRA 684 Tutorat en linguistique (F) (3 credits)

Component(s):
Tutorial

Notes:

- (F) Ce cours est offert en français

FTRA 685 Tutorial in Linguistics (A) (3 credits)

Component(s):
Tutorial

Notes:

- (A) This course is offered in English.

FTRA 698 Étude d'un sujet particulier / Special Topics (3 credits)

Description:
Ce cours pourra porter sur tout sujet en littérature, traduction ou linguistique qui ne figure pas déjà au programme. Le but du cours est de favoriser une approche pluridisciplinaire et de permettre l'innovation pédagogique.

Mémoire

FTRA 686 Projet de mémoire (6 credits)

Component(s):
Lecture

FTRA 692 Mémoire (24 credits)

Description:
L'étudiante ou l'étudiant pourra choisir d'étudier un sujet particulier en littérature, traduction ou linguistique, sous la forme d'un tutorat. Les tutorats devront être approuvés par le comité d'études supérieures et dépendront des aptitudes et intérêts de l'étudiante et de l'étudiant ainsi que de la disponibilité et des compétences du professeur concerné.

Component(s):
Lecture

Notes:

- Les étudiantes et étudiants admis avant 2002-2003 et qui ont préféré rester dans l'ancien programme peuvent suivre FTRA 690 (21 crédits) à condition d'avoir satisfait aux exigences de l'ancien programme.

Geography, Planning and Environment Courses

ENVS 601 EA: Concepts, Principles and Practice (6 credits)

Prerequisite/Corequisite:
Permission of the EA Graduate Program Director is required.

Description:
This course aims to provide students with theoretical and practical knowledge related to environmental assessment and its role in project planning and policy development. The evolution of environmental assessment (EA), its current practices and functions, and future directions are discussed. The roles and components of EA and EA procedures in Canada (at both the federal and provincial levels) are emphasized. Guest speakers, regular readings and in-class discussions supplement the lectures.

Component(s):
Seminar

ENVS 604 Environmental Law and Policy (3 credits)

Prerequisite/Corequisite:
Permission of the EA Graduate Programme Director is required.

Description:
This course introduces students to environmental law and policy at the international, North American and regional levels with an emphasis on Environmental Impact Assessment (EIA) as a tool for promoting environmentally sound and sustainable development. The course provides an overview of issues such as environmental security, Strategic Environmental Assessment (SEA), banking and environmental finance, access to justice in environmental decision making, climate change, biodiversity, and green growth. The role of international organizations and Multilateral Environmental Agreements (MEAs) is given particular attention.

Component(s):
Lecture

ENVS 605 Environmental Standards (3 credits)

Prerequisite/Corequisite:
Permission of the EA Graduate Program Director is required.

Description:
This course provides an overview of the International Standards Organization (ISO) standards and guidelines for industry to implement a sound Environmental Management System (EMS). These guidelines are outlined in a series of publications designated as ISO 14000. Topics covered will include: the evolution and benefits of EMS, the ISO 14001 principles, integration between ISO 9001 and 14001, the registration process, auditing an EMS, life cycle assessment, and environmental labelling. Upon successful completion of the course, students are encouraged to pursue formal accreditation.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under an ENVS 505 number may not take this course for credit.

ENVS 608 Getting Ready for the EA Internship (3 credits)

Prerequisite/Corequisite:
Permission of the EA Graduate Program Director is required.

Description:
Students gain an understanding of the internship process and acquire information necessary to prepare for the work involved in securing an internship. Workshops on professional development help students prepare for and secure internship placements, and enhance their report writing and oral presentation skills. The course includes four workshops: 1) Internship requirement and timeline, 2) Resumé writing and interview techniques, 3) Writing of final report and preparation for oral presentation, and 4) Basic concepts of project management. Students are required to assess the written internship reports and oral presentations of their peers.

Component(s):
Workshop

Notes:

- The course is graded on a pass/fail basis.

ENVS 620 Advanced Topics in Environmental Assessment (3 credits)

Description:
This course focuses on selected topics within the discipline. Topics vary to permit investigation of current and developing theories and research areas.

Notes:

- The content will vary from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content will be indicated by a letter following the course number, e.g. ENVS 620A, ENVS 620B, etc.

ENVS 652 Data Collection and Analysis for EA (3 credits)

Prerequisite/Corequisite:
Permission of the EA Graduate Program Director is required.

Description:
This course focuses on methods and issues in data collection and analysis appropriate for impact prediction in the abiotic, biotic and built environment, including air, surface and ground water, soil, landscape, biodiversity, noise, cultural and socio-economic conditions.

Component(s):
Seminar

Notes:

- Students who have received credit for ENVS 662 may not take this course for credit.

ENVS 653 Geographical Information Systems for EA (3 credits)

Prerequisite/Corequisite:
Permission of the EA Graduate Program Director is required.

Description:
This course examines the use of Geographical Information Systems (GIS) in Environmental Assessment (EA), particularly focusing on the role of GIS in the analysis of environmental data and in decision-making processes. Topics covered include data acquisition multi-criteria decision analysis, fuzzy sets and interpolation techniques. The course comprises lectures, lab exercises and case study analysis. The instruction is built around a series of practical exercises mainly using industry-standard GIS software. The objective of the course is to provide a sound theoretical and practical background in the use of geospatial technologies for EA applications.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for ENVS 663 may not take this course for credit.

ENVS 664 Field Course in EA (3 credits)

Prerequisite/Corequisite:
Permission of the EA Graduate Program Director is required.

Description:
The goal of this course is to expose students to practical issues related to Environmental Assessment (EA). The course comprises: (1) in-class preparation meetings followed by (2) a one-week in-field experience. During this week, students meet practitioners and individuals from local communities, industries and/or governments involved in EA. Through these interactions, students are exposed to a diverse range of perspectives and experiences related to EA. The course is validated through an assessment of the knowledge acquired during the trip. Students are responsible for the cost of food, accommodation and transportation associated with the one-week field trip (cost varies depending on destination).

Component(s):
Field Studies

Notes:

- Students who have received credit for ENVS 662 may not take this course for credit.

ENVS 668 Indigenous Peoples and Environmental Assessment (3 credits)

Prerequisite/Corequisite:
Permission of the EA Graduate Program Director is required.

Description:
Development projects are often located on or adjacent to Indigenous territories with significant impacts on their lands, lives and cultures. As such, Indigenous peoples require unique consideration within EA frameworks which should respect Indigenous and treaty rights, including international commitments (e.g. UN Declaration on the Rights of Indigenous Peoples) and court rulings related to: (1) Free, Prior, and Informed Consent (FPIC) for development proposed on Indigenous lands; and (2) the inclusion of Indigenous knowledge and perspectives in decision-making. This seminar course surveys recent developments in these areas and explores the potential of EA to contribute to reconciliation between Indigenous and non-Indigenous peoples in Canada (and elsewhere).

Component(s):
Seminar

ENVS 697 Internship in Environmental Assessment (9 credits)

Prerequisite/Corequisite:
Students must have completed all course work (27 credits) prior to enrolling. A minimum GPA of 3.30 and permission of the department are required.

Description:
This internship consists of a four-month placement in sectors such as industry, government, or non-government organizations (NGOs), where Environmental Assessment (EA) work is being undertaken.This course provides experiential learning and the development of professional skills and enhances understanding of academic and theoretical knowledge.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.
- Students work with the Internship Coordinator to obtain a placement and all placements are subject to approval by the Graduate Program Director. The Graduate Program Director attribute the credits earned for this course dependent on the internship contract dates and the corresponding academic term dates.

ENVS 698 Internship Report (9 credits)

Prerequisite/Corequisite:
Permission of the Department is required.

Description:
The internship report is the equivalent of a graduate seminar paper. It is theoretically grounded, and includes a critical analysis of or reflection on some feature(s), or case study emerging from the internship activities. Students are required to present their topic orally, in addition to submitting a written report.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.
- Students who do not successfully complete this course may request to graduate with a Diploma in Environmental Assessment.

GEOG 607 GEOG 607 Indigenous Peoples and the Environment (3 credits)

Description:
This course provides an extended, in-depth exploration of the relationships and roles of Indigenous peoples with respect to their traditional territories and natural resources. Indigenous ontologies and epistemologies are highlighted in addition to Indigenous aspirations and approaches for use and stewardship of the environment. The course examines theoretical and case-study literature, with a broad regional focus on Aboriginal peoples in Canada while also drawing from comparative international experiences of Indigenous peoples.

GEOG 620 Special Topics in Geography (3 credits)

Description:
This course focuses on selected topics within the discipline. Topics vary to permit investigation of current and developing theories and research areas.

Notes:

- The content will vary from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content will be indicated by changes to the title in the graduate course schedule.

GEOG 625 Directed Studies (3 credits)

Prerequisite/Corequisite:
Written permission of the graduate program director is required.

Description:

A student studies a particular field or topic relating to geography, urban or environment studies. A detailed outline of the proposed study, approved by a study supervisor is required.

Component(s):
Reading

HENV 605 Advanced Qualitative Research Methods (3 credits)

Description:
This course considers some of the foundational theories that inform contemporary research in the fields of Human Geography and Urban Studies. It also explores a spectrum of qualitative research paradigms, theories and advanced methodologies relevant to social science. of qualitative research paradigms, theories and methodologies relevant to social science.

Component(s):
Seminar

HENV 610 Advanced Quantitative Research Methods (3 credits)

Description:
This course considers experimental design and advanced data analysis methods in Geography and Environmental Sciences. The course focuses on statistical analysis of quantitative data, using the R programming environment. Specific topics include data exploration and plotting, advanced statistical tests, linear regression, statistical model selection, non-parametric tests and mixed effects models.

Component(s):
Seminar; Laboratory

HENV 615 Research Proposal Seminar (3 credits)

Description:
This seminar provides an opportunity to extend, deepen, and apply the conceptual and methodological frameworks presented in the core and elective courses, through a combination of classroom discussions and attendance at departmental research seminars. Students are taught research and presentation skills and are guided through the process of preparing their thesis research proposal. Students need to submit a written research proposal to their thesis research supervisor(s) as a requirement for this course.

Component(s):
Seminar

HENV 620 Sustainable Transportation (3 credits)

Description:

This advanced seminar explores the different elements of what is broadly known as sustainable transportation. It considers the importance as well as the negative impacts of transport systems, and how these are described and captured methodologically. Of critical importance is the intimate link between land-use and transportation systems.

Component(s):
Seminar

HENV 625 Sustainable Resource Management (3 credits)

Description:
This seminar examines the impact of human activities on natural resources. Topics such as integrated management and exploitation practices, biodiversity and conservation, focusing particularly on forest and water resources from physical, chemical, biological, socio-economic, and technological perspectives are investigated.

Component(s):
Seminar

HENV 630 Theories of Society and Space (3 credits)

Description:
Human Geography is informed by a range of theories that have developed inside and outside the discipline. This course introduces students to some of the most influential of these theories as well as to theoretically-informed geographical literature. While students are exposed to foundational theories, the course focuses on critical geographical work that seeks to interpret the present moment.

Component(s):
Seminar

HENV 635 Spatial Analysis (3 credits)

Description:
This course examines analytical methods for handling specifically spatial data, where the arrangement of observations in space is thought to be of significance. The emphasis is on the choice and application of appropriate methods for the analysis of various types of data that are encountered in Geography, Planning and Environmental Studies. Procedures for analyzing spatial distributions of phenomena, temporal dynamics and change are examined in relation to Geographical Information Systems (GIS) tools and statistical techniques.

Component(s):
Seminar

HENV 640 (Re)shaping the City (3 credits)

Description:
: By relying on an array of theoretical formulations informed by political economy, economic geography, urban morphology, urban sociology, anthropology and ecology, this seminar explores various social processes that contribute to the shaping and reshaping of our cities' material and spatial forms.

Component(s):
Seminar

HENV 645 Behaviour and the Urban Environment (3 credits)

Description:
This course provides a basic understanding of the relationship between people and the urban environment. The focus is on the collective and individual responses of people to the built or designed environment, and the way in which these responses can be used to guide projects, plans and policies. The basic studies for the location of commercial facilities and the modelling of human spatial behaviour are introduced.

Component(s):
Seminar

HENV 650 The Political Economy of the City (3 credits)

Description:
This course explores the implications of economic globalization and neoliberalism for urban life in late capitalist (post-1970s) period. Drawing on literatures from the fields of planning, geography, and political economy, it focuses on how urban policies and services are being restructured and how these changes affect different social groups.

Component(s):
Seminar

HENV 655 Environmental Modelling (3 credits)

Description:
The different approaches to modelling the bio-physical, built or human environment are examined. The conceptualization of simple models to examine how human interventions affect the environment is investigated. Different modelling approaches such as system models, computer visualization and simulation are covered. Students develop a model scheme related to their thesis topic.

Component(s):
Lecture; Laboratory

HENV 660 Climate Change and Sustainability (3 credits)

Description:
This seminar examines the interface between climate science, and the demands and challenges of developing sustainable human societies. Class discussions are oriented around current literature on topics such as the potential impacts of climate change on vulnerable communities, strategies to enhance resilience and increase global equity in climate mitigation efforts, and opportunities to develop sustainable energy systems. The course also includes quantitative analysis and visualization of spatial change datasets.

Component(s):
Seminar

HENV 665 Special Topics Seminar (3 credits)

Description:
This course is designed to meet the special needs of individual graduate students. Topics vary to permit investigation of current and developing theories and research areas. Content involves presentation, discussion, and critical analysis of information from relevant scientific literature. The course will also take advantage of visiting expertise.

Component(s):
Seminar

HENV 670 Environmental Governance (3 credits)

Description:
This course examines the principles, practices and institutions involved in environmental conservation and management as well as the sustainable exploitation of natural resources. Topics include sustainability, the precautionary principle, social capital, adaptive capacity, common property resource theories, deliberative democracy, environmental justice and environmental conflict resolution. Attention is given to issues of scale, particularly the mismatch of spatial, temporal and functional scales that characterize unsustainable management and use practices.

Component(s):
Seminar

HENV 675 Community-Based Conservation (3 credits)

Description:
This course addresses the question of community participation in conservation and development initiatives. Focusing on the particular experience of local communities, it presents participatory concepts, principles, tools, and processes that have practical application to a broad range of contexts and settings.

Component(s):
Seminar

HENV 680 Advanced Seminar in Environmental Science (3 credits)

Description:
This course provides an overview of current research in environmental and related scientific disciplines. The course involves seminars, presentations, and critical analysis of scientific literature, including discussion of cutting-edge research topics in fields such as ecological restoration, biodiversity, climate change, renewable energy, food and water security, and natural resource conservation.

Component(s):
Seminar

HENV 685 Thesis Proposal (3 credits)

Prerequisite/Corequisite:
The thesis proposal should be completed before the end of the second semester of residency in the MSc program and after a minimum of 6 credits in the Program have been taken.

Description:
Students are required to select their research topic and formulate a research proposal under the supervision of a thesis supervisor and with input from a thesis committee. The written proposal will include a sound rationale for the proposed research, a detailed description of the research design and methodology, and a comprehensive literature review. Students are also required to present an oral presentation of their proposal to the Department. The thesis proposal must be formally approved by the thesis committee and the Graduate Program Director before research activities can begin.

Component(s):
Thesis Research

HENV 690 Seminar in Social and Cultural Geography (3 credits)

Description:
This seminar introduces students to some important contemporary geographical approaches and topics in the study of society and culture. Specific themes may include globalization, migration, multiculturalism and diaspora, marginality, policing and imprisonment, and social movements. To provide a broad understanding of these themes, the course emphasizes analyses that draw upon geographical concepts of space, place, identity, and power.

Component(s):
Seminar

HENV 695 Thesis (30 credits)

Description:
Students are required to demonstrate their ability to carry out original, independent research. The thesis, which will be researched and

written under the direction of a supervisor and thesis committee, should normally not exceed 100 pages. Upon completion of the thesis, the student will be required to defend his/her thesis before an external examiner and his/her thesis committee.

Component(s):
Thesis Research

HENV 801 Pedagogical Training (3 credits)

Description:
The objective of this course is to ensure that all PhD students acquire strong teaching and other communication skills which are useful for both academic and non-academic positions. Candidates are required to attend a seminar in university teaching in collaboration with the Centre for Teaching and Learning Services of Concordia University. Following the successful completion of this seminar, candidates are required to give four lectures (normally 75 minutes each) to undergraduate classes.

Component(s):
Modular

Notes:

- The course is graded on a pass/fail basis.

HENV 802 Experiential Learning (3 credits)

Description:
The objective of this course is to ensure that all students acquire some practical experience in their field of research. Candidates are required to work for a minimum of 200 hours (either full-time or part-time) in either the private sector in a field relevant to their doctoral research, in a research laboratory based outside Concordia University, in a non-profit organization or in the government.

Component(s):
Independent Study

Notes:

- The course is graded on a pass/fail basis.

HENV 805 Research Proposal Seminar (3 credits)

Description:
Conceptual and methodological frameworks related to human interventions in the environment in the built, social and natural environment are examined through various student presentations and exchanges on their research topic. This course includes completion of the oral presentation of the research proposal.

Component(s):

Seminar

HENV 810 Thesis Proposal (3 credits)

Description:

Students are required to select their research topic and formulate a thesis proposal under the supervision of a thesis supervisor and with input from a supervisory committee. The written proposal includes a sound rationale for the proposed research, a detailed description of the research design and methodology, and a comprehensive literature review. The thesis proposal is assessed by the supervisory committee and approved by the Graduate Program Director.

Component(s):

Thesis Research

HENV 885 Comprehensive Exam (6 credits)

Description:

The comprehensive exam is prepared in consultation with the supervisory committee and aims to ensure that the student has a sound knowledge of three areas of concentration within his or her field of research. The examining committee consists of the supervisory committee plus one additional member of the Department of Geography, Planning and Environment and is chaired by the Graduate Program Director. The student is evaluated on the quality of the written and oral responses to questions.

Component(s):

Thesis Research

HENV 895 Research and Thesis (66 credits)

Description:

A major portion of the doctoral program involves the planning and execution of innovative and original research under the direction of a supervisor or two co-supervisors. The thesis is examined by a Thesis Examining Committee and is defended orally.

Component(s):

Thesis Research

Health, Kinesiology, and Applied Physiology Courses

Health and Exercise Science MSc Courses

EXCI 610 Statistics and Research Design (3 credits)

Description:

This course provides students with a background in statistics and experimental design. Students are exposed to a variety of experimental designs applicable to the exercise sciences. The course covers the application of statistical concepts in consideration of specific experimental design methods. A number of parametric and non-parametric statistics are introduced for hypothesis testing, with the opportunity to apply relevant knowledge using various statistical software packages.

Component(s):

Lecture

EXCI 612 Laboratory Techniques (3 credits)

Description:

The course provides a theoretical awareness of measurement principles and offers practical experience in applying techniques common to advanced research methodologies in exercise science. The potential topics to be covered are geared towards the requirements of the individual in the areas of exercise physiology and athletic therapy. These may include such topics as data acquisition and analysis, electromyography, blood flow methodologies, spectrophotometry, pulmonary gas exchange, motion analysis, and tissue histochemistry.

Component(s):

Lecture

Notes:

- This course may be cross-listed with HEXS 810, HEXS 811or HEXS 812.

EXCI 624 Special Topics Seminar (3 credits)

Description:

This course is designed to meet the special needs of graduate students in the exercise science areas of concentration specific to athletic therapy and clinical exercise physiology. Topics vary within the domain to account for investigation of current and developing theories. The course involves presentation, discussion, and critical analysis of information from current scientific journal literature.

Component(s):

Lecture

EXCI 626 Thesis Proposal (3 credits)

Description:
This course provides students with the opportunity to choose a research topic and formulate a research proposal under the supervision of a thesis advisor. The proposal should include a literature review, rationale, hypothesis, and methodology including the planned research design and data analysis. Students are required to present a seminar in the Department on their research prior to the presentation of their proposal to the thesis advisory committee.

Component(s):
Thesis Research

EXCI 670 Thesis (33 credits)

Prerequisite/Corequisite:
The following course must be completed previously: EXCI 626.

Description:
Students are required to demonstrate their ability to carry out independent research which reflects a scientific approach. In addition to a written final thesis, a public oral examination is conducted to test the student's ability to defend the thesis.

Component(s):
Thesis Research

EXCI 680 Thesis (Athletic Therapy) (33 credits)

Prerequisite/Corequisite:
The following course must be completed previously: EXCI 626.

Description:
Students are required to demonstrate their ability to carry out independent research which reflects a scientific approach. In addition to a written final thesis, a public oral examination is conducted to test the student’s ability to defend the thesis.

Component(s):
Thesis Research

EXCI 690 Thesis (Clinical Exercise Physiology) (33 credits)

Prerequisite/Corequisite:
The following course must be completed previously: EXCI 626.

Description:

Students are required to demonstrate their ability to carry out independent research which reflects a scientific approach. In addition to a written final thesis, a public oral examination is conducted to test the student's ability to defend the thesis.

Component(s):
Thesis Research

EXCI 698 Selected Topics in Exercise Science (3 credits)

Description:
This course explores themes within the area of Exercise Science.

Component(s):
Lecture

Health and Exercise Science PhD Courses

HEXS 801 Scientific Communication and Pedagogy in Health and Exercise Science (3 credits)

Description:
This course meets the needs of graduate students in developing adequate skills to communicate scientific information efficiently to different interest groups, such as grant adjudication committees, the general public, or undergraduate and graduate students in an academic setting. It serves in developing scientific communication skills by focusing on written and oral presentation skills, aimed at the scientists, students, or lay public. Faculty members from the department and selected guests provide information and applications on successful approaches to reach each of these groups. On the pedagogical side, it includes the development of course objectives and a course outline, along with preparing and presenting a lecture at the undergraduate level. It also involves presentation, discussion, and critical analysis of information from current scientific journal literature for scientists.

Component(s):
Lecture

HEXS 810 Advanced Topics in Health and Exercise Science: Physiology Module (3 credits)

Description:
This course examines the fundamental mechanisms and the functional control of specific systems of the body. A detailed analysis of the system, including the molecular and systemic aspects of the given system is addressed. This course focuses on recent research outcomes and new issues in molecular and systemic physiology. The course content varies depending on the specific system studied.

Component(s):
Lecture

HEXS 811 Advanced Topics in Health and Exercise Science: Intervention Module (3 credits)

Description:
This course examines concepts in the rehabilitation process from exercise adherence to tissue healing, and introduces students to various exercise protocols specific to the selected area of study. Students learn how to implement safe and effective rehabilitation protocols to address dysfunction and functional recovery. This course focuses on recent research outcomes and new issues in rehabilitation specific to prevention, assessment, and rehabilitation of injuries. The course content varies depending on the area of rehabilitation.

Component(s):
Lecture

HEXS 812 Advanced Topics in Health and Exercise Science: Population Health Module (3 credits)

Description:
This course surveys the health-related aspects of exercise, physical activity, and physical fitness from a population health perspective. Topics include current debates in biomedical ethics, health policy, as well as, methods and concepts in behavioural and environmental determinants of activity and fitness.

Component(s):
Lecture

HEXS 820 Special Topics in Health and Exercise Science (3 credits)

Description:
This course provides students with flexibility to address a specific area of specialization in Health and Exercise Science. This can be a reading course organized by the supervisor, a course chosen from the list of Advanced Topics courses, or a similar-level course from another department or institution, while being related to a specialization in Health and Exercise Science. The course is chosen in consultation with the student's supervisory committee. The course can be internal or external, and provides students with the capacity to specialize even further in relation to their research project.

Component(s):
Seminar

HEXS 850 Comprehensive Exam in Health and Exercise Science (6 credits)

Description:
The comprehensive exam is given by an examination committee composed of selected faculty members, at the end of the first year of study. The committee includes the supervisor and three additional faculty members with varied expertise related to the thesis topic. The examination committee identifies selected readings for the student. The student is expected to prepare for both a written and an oral examination. The body of knowledge for the comprehensive examination is defined by the committee in the form of advanced book chapters and other scientific readings. The written exam comes first, composed of five (5) questions asked by the committee, in the form of argumentative essays written in the span of two weeks; following a satisfactory evaluation of this work, the student is convened to the oral part, comprising a series of questions coming from the panel concerning the written answers or additional aspects coming from the readings. The examining committee consists of the student’s supervisory committee and is chaired by the Graduate

Program Director.

Component(s):
Thesis Research

Notes:

- The course is graded on a pass/fail basis. The student is evaluated on the basis of the quality of the oral and written presentations and on the responses to the questions from the examining committee.
- The student has to successfully pass the comprehensive examination in order to progress to the proposal, usually the following term.

HEXS 851 Research Proposal in Health and Exercise Science (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: HEXS 850.

Description:
Students are required to write a research proposal describing a series of projects leading to the production of new knowledge from hypothesis-driven data acquisition and experimental inquiry. A supervisory committee including the supervisor and three additional faculty members (often the same as the comprehensive examination) with varied expertise related to the thesis topic is formed to guide the student with the production of the proposal. The proposal is presented in written form to the committee, and in oral form to the committee and department.

Component(s):
Thesis Research

Notes:

- The course is graded on a pass/fail basis.

HEXS 890 Research and Thesis in Health and Exercise Science (69 credits)

Prerequisite/Corequisite:
The following course must be completed previously: HEXS 851.

Description:
Students are required to write a PhD thesis, which involves the integration of knowledge from the health and exercise sciences, and the planning and execution of innovative and original research while under faculty member supervision. The thesis is evaluated by a thesis committee, as well as being the object of an oral defense, under the guidelines of the School of Graduate Studies.

Component(s):
Thesis Research

History Courses

History PhD Courses

Most graduate seminars and tutorials are one term in length. The content of these courses varies from term to term. Students should consult the department for more detailed information.

Research, Theses, and Comprehensive Examinations

HIST 877 Comprehensive Minor Field Tutorial (3 credits)

Component(s):
Tutorial

Notes:

- Subject matter varies from term to term and from year to year. Changes in content are indicated by changes to the course title. Students must register for this course twice in order to fulfill their degree requirements.
- In exceptional cases, student may, with permission of the graduate program director, do three credits of course work at an equivalent level in another discipline.

HIST 878 Comprehensive Major Field Tutorial (6 credits)

Description:
This course includes an explicit course-preparation component, where the student prepares an annotated syllabus for an undergraduate lecture course encompassed by the major field. In exceptional cases, students may, with permission of the graduate program director, do three credits of course work at an equivalent level in another discipline.

Component(s):
Tutorial

Notes:

- This course includes an explicit course-preparation component, where the student prepares an annotated syllabus for an undergraduate lecture course encompassed by the major field.

HIST 880 Comprehensive Examinations (12 credits)

Description:
Subject to the availability of appropriate faculty members, the Department of History is normally prepared to supervise comprehensive examinations in a range of broadly defined geographical and chronologically limited fields, as well as in thematic fields, as suits the student's program. Example of fields recently supervised include: History of Canada since 1867; History of France since 1789; History of Haiti from 1801 to 1986; Labour History. For other fields available, applicants may consult the faculty research pages of the

department's website. The major field will be that in which the student's proposed doctoral thesis falls. Normally students choose at least one field defined in specific geographical terms. Any student may offer one examination in a related discipline when approved by the History Graduate Committee and by the appropriate faculty member and/or program administrator in that discipline. The preparation of a comprehensive field should give students sufficient background to teach at an introductory level and/or do advanced research in the field. Although the requirements may vary from one field to the next, a core reading list of 50 to 100 titles per field is suggested as reasonable. The reading list for a field is be drawn up by the professor in consultation with the student in the context of the reading courses associated with the field taken in the student's first year, and once established, both must agree to any significant changes. The comprehensive examinations consist of take-home examinations in three selected fields, each is completed over a 72-hour period. These written examinations are normally completed within a three-week period. If successful, they are followed by an oral examination, involving all three examiners,normally held within two weeks of the last written comprehensive. The purpose of the oral comprehensive is to allow the doctoral student the opportunity to explain or expand on parts of the written examinations which professors found inadequate or unclear, as well as to allow for more general discussion among the examiners and the student as a group of historians.

Component(s):
Thesis Research

HIST 885 PhD Thesis Proposal and Colloquium (6 credits)

Description:
Following the successful completion of the comprehensive exams, students prepare a written thesis proposal for the approval of the internal members of their thesis committee. The thesis proposal should describe and justify the intended topic, explain its place in the historiography of the field, discuss the intended research methods, and identify the source requirements including their availability. Students are normally expected to submit and defend their thesis proposal by the end of the fifth term of their studies. When the written proposal is approved the student presents an oral colloquium about the proposal to the department. When the proposal and colloquium requirements are satisfied, the student is admitted to candidacy.

Component(s):
Thesis Research

HIST 889 Doctoral Seminar (6 credits)

Description:
This seminar complements students' individualized tutorial preparation for comprehensive exams and facilitates their preparation of the thesis proposal by offering a forum for faculty guidance in and peer discussion of matters of scholarly, pedagogical, and professional practice. Subjects to be addressed include study and writing strategies for comprehensive exams; thesis topics and proposal-writing; research methods and resources; and professional skills.

Component(s):
Seminar

Notes:

- The seminar meets bi-weekly during the fall and winter terms.

HIST 890 Thesis Research (54 credits)

Description:
Doctoral students must submit a thesis based on their research and defend it in an oral examination. A doctoral thesis in history is expected to be based on extensive research in primary sources, to make an original contribution to historical knowledge, and to be presented in an acceptable literary form. The PhD thesis should normally run to no more than 400 pages including all critical apparatuses.

Component(s):
Thesis Research

History MA Courses

Most graduate seminars and tutorials are one term in length. The content of these courses varies from term to term. Students should consult the department for more detailed information.

HIST 600 The Nature of Historical Knowledge (3 credits)

Description:
This course examines the history of the discipline and the nature of historical knowledge, as well as contemporary debates about the meaning and practice of history. The content varies from term to term depending on the instructor(s). The material covered may include the following: research tools (e.g. library resources, the archives and the Internet), major approaches to history (e.g. Marxist, Annaliste, feminist), the debate about objectivity and truth in history, public history (history in film, television, schools, museums), and the impact of postmodernism on historical practice.

Component(s):
Seminar

HIST 601 Historical Research Methods (3 credits)

Description:
This course guides students in the initial stages of developing an MA thesis topic and elaborating a substantial research proposal.

Component(s):
Seminar

European History

HIST 610 Selected Topics in European History (3 credits)

Component(s):
Seminar

Canadian History

HIST 620 Selected Topics in Canadian History (3 credits)

Component(s):
Lecture

United States History

HIST 630 Selected Topics in US History (3 credits)

Component(s):
Seminar

Latin American and Caribbean History

HIST 634 Selected Topics in Latin American and Caribbean History (3 credits)

Component(s):
Lecture; Seminar

Asian History

HIST 638 Selected Topics in Asian History (3 credits)

Component(s):
Seminar

Middle Eastern History

HIST 642 Selected Topics in Middle Eastern History (3 credits)

Component(s):

Seminar

African History

HIST 646 Selected Topics in African History (3 credits)

Component(s):
Seminar

History of Genocide and Human Rights

HIST 650 Selected Topics in the History of Genocide and Human Rights (3 credits)

Component(s):
Seminar

History of Gender and Sexuality

HIST 660 Selected Topics in the History of Gender and Sexuality (3 credits)

Component(s):
Seminar

Public History

HIST 665 Selected Topics in Public History (3 credits)

Component(s):
Seminar

Selected Areas of History

HIST 670 Selected Topics in History (3 credits)

Component(s):
Seminar

HIST 679 Tutorial in a Selected Area of History (3 credits)

Component(s):
Lecture

Research, Theses, and Comprehensive Examinations

HIST 685 MA Thesis (30 credits)

Description:
The thesis is a work of primary research that normally runs to 18,000-24,000 words (about 60-80 pages), exclusive of footnotes and bibliography. Prepared under the supervision of one or more faculty, it must be defended orally before a committee of three History faculty including the supervisor.

Component(s):
Thesis Research

Humanities Courses

Humanities PhD Required Courses

HUMA 888 Seminar in Interdisciplinary Studies I (3 credits)

Description:
A required core seminar to be taken by all students within their first year in the program. This course engages with theories and methods of interdisciplinarity germane to the humanities, social sciences and fine arts, including those pertinent to research-creation. Its objectives include enhancing awareness of the role of conceptual frameworks and institutional practices in the shaping of interdisciplinary scholarly and creative explorations, and providing students with opportunities to begin pursuing theoretical and methodological issues vital to their individual interdisciplinary projects.

Component(s):
Seminar

HUMA 889 Seminar in Interdisciplinary Studies II (3 credits)

Description:
A required core seminar to be taken by all students within their first year in the program. Each year a different topic or approach is selected with the aim of exploring how it is pursued and challenged across disciplinary boundaries.

Component(s):
Lecture

Humanities PhD Elective Courses

HUMA 884 Directed Studies (3 credits)

Description:
A directed study course provides students with the opportunity to pursue advanced and focused work with individual faculty members in the fields that constitute the student's program of study. Directed study courses are designated by the course topic.

Component(s):
Lecture

HUMA 887 Advanced Seminar in Special Topics in Interdisciplinary Studies (3 credits)

Description:
This seminar examines in-depth special topics in interdisciplinary studies.

Component(s):
Seminar

Notes:

- The content varies from term to term and from year to year. Students may reregister for this course, provided the course content has changed. Changes in content are indicated by the course topic following the HUMA 887 course title.

Humanities PhD Comprehensive Examinations and Thesis Courses

HUMA 891 Comprehensive Examination Major Field (3 credits)

Description:
Upon completion of the required coursework, students take three comprehensive field examinations before proceeding to the thesis proposal stage. Each examination is set and marked by the student's advisor in that field. For students pursuing a research-creation project, one of the comprehensive examinations is a studio examination attended by all three advisors and chaired by the program director.

Component(s):
Lecture

HUMA 892 Comprehensive Examination Minor Field I (3 credits)

Description:
Upon completion of the required coursework, students take three comprehensive field examinations before proceeding to the thesis proposal stage. Each examination is set and marked by the student's advisor in that field. For students pursuing a research-creation project, one of the comprehensive examinations is a studio examination attended by all three advisors and chaired by the program director.

Component(s):
Lecture

HUMA 893 Comprehensive Examination Minor Field II (3 credits)

Description:
Upon completion of the required coursework, students take three comprehensive field examinations before proceeding to the thesis proposal stage. Each examination is set and marked by the student's advisor in that field. For students pursuing a research-creation project, one of the comprehensive examinations is a studio examination attended by all three advisors and chaired by the program director.

Component(s):
Lecture

HUMA 894 Thesis Proposal with Defence (3 credits)

Description:

Upon completion of the required coursework and three comprehensive field examinations, students are admitted to candidacy following acceptance by their advisory committee of the written thesis proposal and its successful oral defence. The thesis proposal should be integrative in character, bringing the student's three fields to bear on the thesis project and laying the groundwork for the thesis.

Component(s):

Lecture

HUMA 895 Thesis (57 credits)

Description:

A doctoral thesis should be based on extensive research in primary sources, make a significant and original contribution to knowledge, and be presented in a manner that conceptually and formally accords with scholarly standards. Students may produce a research-creation thesis with the approval of the student's advisory committee and the Humanities Program Director. In accordance with the thesis guidelines of the School of Graduate Studies, a research-creation thesis normally comprises two synthesized components: a creative production component (which may be presented in a variety of media, communicative, or performative platforms) and a written scholarly component. The written scholarly component of the research-creation thesis should demonstrate substantial knowledge of the relevant scholarly literature, consider methodological issues, and present a contribution to knowledge. In addition, the research-creation thesis must demonstrate knowledge of prevailing practices and precedents in the practical field of activity in which the creative production component situates itself, and may reflect on the production process.

Component(s):

Lecture

Journalism Courses

JOUR 500 Critical Approaches to Journalism (3 credits)

Description:
This course introduces students to a scholarly critique of journalism, both as a practice and as an institution. By interrogating specific readings, students are encouraged to consider the journalist as a cultural producer operating within overlapping social, political and economic contexts.

Component(s):
Lecture

JOUR 501 Research Methods for Journalism (3 credits)

Description:
This course introduces students to research methods with a focus on primary sources, such as official documents, legal and financial records, access to information requests, electronic databases, as well as in-depth interviews. These methods are treated as both sources of story ideas and as essential elements of good reporting.

Component(s):
Workshop

JOUR 502 Introduction to Reporting (3 credits)

Description:
This is a comprehensive lecture/laboratory course which lays the foundations for the writing and reporting demands of journalism. Students are introduced to the salient features of print and digital formats, and receive assignments in information-gathering and writing both in class and in the field.

Component(s):
Workshop

JOUR 503 Introduction to Visual Journalism (3 credits)

Description:
This workshop course lays the foundation for the visual aspects of journalistic story-telling. Working with digital, single-lens reflex cameras, students acquire fundamental skills for the practice of visual journalism, becoming familiar with a variety of aesthetic, technical, ethical and theoretical concerns involved in the visual production of meaning.

Component(s):
Workshop

JOUR 504 Intermediate Reporting (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: JOUR 502.

Description:
This course is intended to consolidate the reporting and writing skills learned during the summer. Through lectures and laboratory work, students expand their knowledge of information-gathering and writing techniques, including short deadline news reporting and feature writing.

Component(s):
Workshop

JOUR 505 Advanced Reporting (3 credits)

Description:
This workshop offers students the opportunity to perfect their reporting and writing skills and to undertake long form writing projects, ranging from beat reporting to magazine writing.

Component(s):
Workshop

JOUR 507 Basics of Digital Imaging (3 credits)

Description:
This workshop course introduces students to the fundamental concepts of editing news photographs. Working with actual news photographs and editing software, students learn to weigh aesthetic and technical considerations with the ethical and theoretical aspects involved in the visual production of meaning.

Component(s):
Workshop

JOUR 508 Research Project (3 credits)

Description:
The project is to be a comprehensive study and report on some area of modern media practice, or on the interaction of media and society. The subject and method must be approved in advance by the instructor of the course.

Component(s):
Tutorial

JOUR 510 Web Editing and Page Design (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: JOUR 501.

Description:
This course offers lectures and workshops in web editing and page design. Specific focus is given to design features related to journalism production and news platforms.

Component(s):
Workshop

JOUR 511 Introduction to Multimedia (3 credits)

Description:
This course is an introduction to the use of technology across audio and visual news platforms, including audio, visual and digital equipment and software. Students learn the necessary professional, technical and aesthetic skills to produce editorially sound audio and visual stories.

Component(s):
Workshop

JOUR 513 Journalism Ethics and the Law (3 credits)

Description:
This course examines the journalist's responsibility in terms of both ethics and the law. It introduces students to a representative cross-section of ethical theories and codes and takes an intensive look at the most common legal issues affecting the practice of journalism.

Component(s):
Lecture

JOUR 521 Visual Story-Telling (3 credits)

Description:
This workshop introduces students to the dynamic and aural elements of visual story-telling in the context of multi-platform journalism. Students acquire technical skills of video and sound capture through instruction that brings to bear aesthetic, ethical and theoretical considerations.

Component(s):
Workshop

JOUR 523 News and Feature Photography (3 credits)

Description:
This workshop course covers a range of journalistic topics – hard news, general news, features, arts, sports – to emphasize the thematic particularities of visual story-telling. The course requires students to consider and incorporate the narrative and representative dimensions of visual journalism through a variety of assignments.

Component(s):
Workshop

JOUR 527 Elements of Lighting for Visual Journalism (3 credits)

Description:
This workshop course introduces students to lighting techniques for both still photography and video story-telling. Students learn to weigh technical and aesthetic aspects of lighting with the ethical and theoretical dimensions involved in the manipulation or alteration of the shooting environment.

Component(s):
Workshop

JOUR 528 The Digital Magazine (3 credits)

Description:
This course requires students to produce the Department's Digital Magazine. The course replicates the working conditions and journalistic experience of a digital newsroom. Students are expected to work in editorial teams to create current and update multimedia content throughout the term.

Component(s):
Workshop

Notes:

- Students who have received credit for this topic under a JOUR 525 number may not take this course for credit.

JOUR 530 Advanced Radio News (3 credits)

Description:
This is a workshop course in which students function as reporters, writers, news readers and editors in order to learn the skills necessary to produce daily newscasts.

Component(s):
Workshop

JOUR 531 Visual Journalism Photo Editing (3 credits)

Description:
This advanced workshop course covers the decision-making process for news, magazine and online photography, treating photo editing as a collaborative element of visual journalism. Moving beyond aesthetic and technical aspects, it situates editing within the larger context of news production, such as collaborating with reporters, editors and photo editors in the story-telling process.

Component(s):
Workshop

JOUR 532 Documentary Video and Radio (3 credits)

Description:
This workshop allows students to perfect their skills in long format public affairs broadcasting in sound and pictures. Students learn the fundamentals of documentary production including story developments and treatment, cinematographic style, interviewing, editing and presentation.

Component(s):
Workshop

JOUR 535 Documentary and Photographic Series (3 credits)

Description:
This advanced workshop course concentrates on the photo story, the editorial essay and the documentary essay. The course emphasizes pre-visualization, planning, logistics and realization as well as optimizing series for newspaper, magazine and online publications.

Component(s):
Workshop

JOUR 536 Advanced Video Journalism (3 credits)

Description:
This course gives students the opportunity to perfect their skills in writing and reporting for video journalism and producing news and public affairs programming.

Component(s):
Workshop

JOUR 537 Visual Journalism Portfolio (3 credits)

Description:
This advanced capstone workshop focuses on students creating professional portfolios, helping them create and establish their individual brands as professional visual journalists.

Component(s):
Workshop

JOUR 542 International Journalism (3 credits)

Description:
This course examines the way journalism is practiced in a selected country or tradition. The focus of the course may change from year to year.

Component(s):
Lecture

JOUR 566 Photojournalism (3 credits)

Description:
Using digital cameras and technology, students perform a variety of exercises and assignments to help them master the techniques used in planning, taking, and laying out news photographs.

Component(s):
Workshop

Notes:

- Students who have received credit for this topic under a JOUR 525 number may not take this course for credit.

JOUR 601 Critical Approaches to Journalistic Thought (3 credits)

Description:
This course introduces students to a scholarly critique of journalism, both as a practice and as an institution. Students examine specific readings from an overlapping social, political and economic context to consider the role of journalists as cultural producers.

Component(s):
Seminar

JOUR 603 Political Economy of Journalism (3 credits)

Description:
This course considers journalism through its organization as a cultural industry and critically evaluates journalism's economic structures and the impact those structures have on journalism practice. Topics may include media economics, free-market theory, media ownership, the role of the government and the role of organized labour.

Component(s):
Seminar

JOUR 604 Research Methods for Journalism (3 credits)

Description:
This course examines a variety of research methods commonly used in the production and study of journalism, from both qualitative and quantitative perspectives. Emphasis is placed on primary sources, access to information requests, and electronic databases with a goal of helping students develop their own research practice.

Component(s):
Seminar

JOUR 605 Digital Innovation in Journalism (3 credits)

Description:
This course offers lectures and workshops in digital innovation and web design, with a focus on design features related to journalism production and news platforms.

Component(s):
Seminar; Conference

JOUR 610 International Journalism (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: JOUR 601.

Description:
This course examines journalism as a cross-cultural and global practice, addressing such issues as media representation, multiculturalism, globalization and international news flows.

Component(s):
Seminar

JOUR 620 Journalism Ethics and the Law (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: JOUR 601. If prerequisites are not satisfied, permission of the program director is required.

Description:
This course examines the journalist's responsibility in terms of both ethics and the law. It introduces students to a representative cross-section of ethical theories and codes and takes an intensive look at the most common legal issues affecting the practice of journalism.

Component(s):
Seminar

JOUR 630 Mediating Diversity through Audio Story-telling (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: JOUR 601. If prerequisites are not satisfied, permission of the program director is required.

Description:
The course is an experiential workshop that blends journalism theory and practice. Students function both as reporters, in order to learn the skills necessary to produce robust audio stories, and digital researchers tasked with examining diversity and media representation issues arising in class to explore journalism's mediating function in society.

Component(s):
Seminar

JOUR 640 Textual Approaches to Journalism (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: JOUR 601.

Description:
This course concentrates on journalism's use of all forms of language, from written text to sounds and images. Drawing from the literature on linguistics, semiotics, textual and discourse analysis, students consider ways in which journalists, through their use of language to describe and depict people, events, institutions and ideas, become implicated in the news they report.

Component(s):
Seminar

JOUR 642 Special Topics in Journalism Studies (3 credits)

Description:
This seminar permits the in-depth examination of particular special topics in digital innovation in journalism studies. Topics vary from year to year.

Component(s):
Seminar; Conference

JOUR 645 Directed Study (3 credits)

Prerequisite/Corequisite:
Permission of the MA Program Director is required.

Description:
Students may enrol in a directed study under faculty supervision in order to undertake a specialized study of theoretical or research-related topics.

Component(s):
Tutorial

JOUR 650 Journalism Readings and Proposal (6 credits)

Prerequisite/Corequisite:
The following course must be completed previously: JOUR 601.

Description:
In consultation with the faculty advisor, the student reviews relevant literature pertinent to the research topic and writes a thesis

proposal demonstrating knowledge based upon the review of the scholarly literature.

Component(s):
Tutorial

JOUR 684 Essay I (9 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: JOUR 601 ; JOUR 604 ; JOUR 605 .

Description:
Under the direction of a supervisor, students explore research topics relevant to journalism studies and select their research focus. Students review and produce an annotated bibliography of relevant academic/grey literatures and journalism production, as well as a written outline as the basis of an essay to be completed in JOUR 685. The course is normally taken in term four of the student's degree.

Component(s):
Independent Study

Notes:

- Students who have taken JOUR 694 may not take this course for credit.

JOUR 685 Essay II (9 credits)

Prerequisite/Corequisite:
The following course must be completed previously: JOUR 684.

Description:
Based on work conducted in JOUR 684, students produce an essay on a research topic developed in consultation with a supervisor that explores a specific issue relevant to journalism studies. The final essay must be evaluated by a second faculty member. The essay's length is approximately 40 pages, which does not include a bibliography. The course is normally taken in term five of the student's degree.

Component(s):
Independent Study

Notes:

- Students who have taken JOUR 694 may not take this course for credit.

JOUR 691 Thesis (24 credits)

Prerequisite/Corequisite:
The following course must be completed previously: JOUR 650.

Description:
The thesis is researched and written under the direction of a supervisor. Upon completion, it is submitted to the student's Thesis Committee. The thesis is defended in an oral examination before the Thesis Committee.

Component(s):
Thesis Research

JOUR 693 Research-Creation Thesis (24 credits)

Prerequisite/Corequisite:
The following course must be completed previously: JOUR 650.

Description:
The Research-Creation Thesis is specifically designed for students with media production experience who wish to complete an original media production using a suitable media platform, complemented by a text of approximately 10,000 words comprising a literature and media review, a theoretical and methodological contextualization, and a critical reflection on the project and its outcomes.

Component(s):
Thesis Research

Mathematics and Statistics Courses

Teaching of Mathematics MTM Courses

Each year the Department of Mathematics and Statistics offers a selection of the following courses.

MATH 601 Topics in Mathematics (3 credits)

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content are indicated by the title of the course.

MATH 602 Readings in Mathematics Education I (3 credits)

Description:
This reading course is closely related to the project or thesis. The outcome is a section of the literature review chapter, related to the domain of research that is the focus of the project or thesis.

Component(s):
Reading

MATH 603 Extended Project (9 credits)

Description:
A student investigates a mathematics education topic, prepares a report, and gives a seminar presentation under the guidance of a faculty member.

Component(s):
Research

MATH 613 Topics in Number Theory (3 credits)

Description:
Topics are chosen from the area of Number Theory.

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content are indicated by the title of the course.

MATH 616 Linear Algebra (3 credits)

Description:
This course is an extension of undergraduate courses in linear algebra, covering a selection of topics in advanced linear algebra (e.g. from the theory of general vector spaces, linear and multilinear algebras, matrix theory, etc.).

Component(s):
Lecture

MATH 618 Topics in the Application of Mathematics (3 credits)

Description:
Topics are chosen from the area of the Application of Mathematics.

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content are indicated by the title of the course.

MATH 621 Geometry (3 credits)

Description:
The course offers an insight into Euclidean and Non-Euclidean geometries.

Component(s):
Lecture

MATH 622 Abstract Algebra (3 credits)

Description:
The course looks at objects such as numbers, polynomials, matrices or transformations from an algebraic-structural point of view. The course may aim at proving such “famous impossibilities” as squaring the circle, duplicating the cube, trisecting an angle or solving a

polynomial equation of degree 5 or more by radicals.

Component(s):
Lecture

MATH 624 Topics in Mathematics Education (3 credits)

Description:
This course is an overview and critical analysis of theories and technologies of mathematics teaching. Applications of the theories to studying and/or developing teaching situations or tools for specific mathematical topics are examined.

Component(s):
Lecture

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content are indicated by the title of the course.

MATH 625 Topology (3 credits)

Description:
The course develops elements of the theory of topological spaces and their transformations.

Component(s):
Lecture

MATH 626 Analysis I (3 credits)

Description:
The course is an extension of undergraduate courses in mathematical analysis in the real domain (Analysis I, II; Real Analysis; Measure Theory).

Component(s):
Lecture

Notes:

- Students may substitute this course with any of the MAST 660-669 courses in the MA/MSc program.

MATH 627 Analysis II (3 credits)

Description:
The course is an extension of undergraduate courses in mathematical analysis in the complex domain (Complex Analysis I, II).

Component(s):
Lecture

Notes:

- Students may substitute this course with any of the MAST 660-669 courses in the MA/MSc program.

MATH 630 Topics in the Psychology of Mathematics Education (3 credits)

Description:
This course studies epistemological, cognitive, affective, social and cultural issues involved in mathematics.

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content are indicated by the title of the course.

MATH 633 Applications of Technology in Mathematics Curriculum Development (3 credits)

Description:
This course is an overview of the impact of information and communication technology on curricula, textbooks and teaching approaches.

Component(s):
Lecture

MATH 634 Computer Software and Mathematics Instruction (3 credits)

Description:
This course is an overview and critical evaluation of computer software designed for use in mathematics instruction.

Component(s):
Lecture

MATH 637 Statistics and Probability (3 credits)

Description:

This course discusses theoretical and applied aspects of statistics and probability.

Component(s):
Lecture

MATH 639 Topics in Technology in Mathematics Education (3 credits)

Description:
This course involves the elaboration, experimentation and critical analysis of individual projects of integration of ICT in mathematics education.

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content are indicated by the title of the course.

MATH 640 Topics in Logic (3 credits)

Description:
Topics are chosen from the area of Mathematical Logic.

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content are indicated by the title of the course.

MATH 641 Survey of Research in Mathematics Education (3 credits)

Description:
This course is an overview of recent results in mathematics education research.

Component(s):
Lecture

MATH 642 Research Methods for Mathematics Education (3 credits)

Description:
This course is an overview of qualitative and quantitative methods in mathematics education research.

Component(s):

Lecture

MATH 645 Topics in Mathematics Education Research (3 credits)

Description:
This course is an overview of research literature on a chosen topic or issue in mathematics education.

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content are indicated by the title of the course.

MATH 646 Research Internship (3 credits)

Description:
Students conduct a pilot study or participate in a research project as a research assistant under the supervision of a senior researcher. The outcome is a written report of the study.

Component(s):
Research

MATH 647 Readings in Mathematics Education II (3 credits)

Description:
The course is closely related to project or thesis writing. Its outcome is a section of the literature review chapter, focused on the student's particular research question.

Component(s):
Reading

MATH 648 Topics in the History of Mathematics (3 credits)

Description:
Topics are chosen from the area of the History of Mathematics.

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content are indicated by the title of the course.

MATH 649 Heuristics and Problem Solving (3 credits)

Description:
This course examines cognitive processes, tools and strategies involved in solving mathematical problems.

Component(s):
Lecture

MATH 652 Seminar in Mathematics Education (3 credits)

Description:
This course is primarily a thesis or project preparation seminar but it is open to students in the Course Option as well. The research related to students' research projects is presented and critically evaluated.

Component(s):
Seminar

MATH 654 Thesis (15 credits)

Description:
Students are required to demonstrate their ability to carry out original, independent research. The thesis is researched and written under the direction of a supervisor and thesis committee. Upon completion of the thesis, the student is required to defend his/her thesis before the thesis committee.

Component(s):
Thesis Research

Mathematics MA/MSc Courses

The MA/MSc courses offered by the Department of Mathematics and Statistics fall into the following categories:

Mathematics History and Methods Courses
Topology and Geometry Courses
Analysis Courses
Statistics and Actuarial Mathematics Courses
Applied Mathematics Courses
Algebra and Logic Courses

The course content will be reviewed each year

Mathematics History and Methods Courses

MAST 651 The Contributions of Mathematics to Intellectual Life (3 credits)

Description:

This course examines several major mathematical advances over the centuries in the historical and intellectual contexts of the day and also focuses on the developments of a particular branch of mathematics over the more recent past. Examples may include recent advances in number theory and geometry leading to a proof of Fermat's Last Theorem and applications of number theory to cryptography.

Component(s):

Lecture

MAST 652 Topics in Research in Mathematics Education (3 credits)

Description:

The general aim of this course is to acquaint students with research problems in mathematics education and ways of approaching them (theoretical frameworks and research methodologies).

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

MAST 653 Topics in the Foundations of Mathematics (3 credits)

Description:

This course focuses on foundational issues and developments in mathematics, with topics chosen from particular branches of mathematics, e.g., geometry (Euclidean and non-Euclidean geometries; comparison of Euclid's "Elements" with Hilbert's "Grundlagen der Geometrie", etc.), or logic (evolution of logic from Aristotle to Boole; Hilbert's program; Gödel's Incompleteness theorems, etc.). It may also look at foundational problems in mathematics suggested by physics and other sciences. More general, philosophical, epistemological and methodological questions about the nature of mathematics may also be chosen as topics for the course.

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

MAST 654 Topics in the History of Mathematics (3 credits)

Description:

This course may focus on a particular epoch and place in the history of mathematics (e.g., Ancient Greek, Indian and Chinese

mathematics; the development of mathematics in Europe in the 17th to 19th centuries, etc.), or on the history of a particular area of mathematics (history of geometry, algebra, analysis, number theory, etc.). Aspects related to the history of approaches to teaching mathematics may also be addressed.

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

Topology and Geometry Courses

MAST 655 Topology (3 credits)

Description:
Topological spaces. Order, product, subspace, quotient topologies. Continuous functions. Compactness and connectedness. The fundamental group and covering spaces.

Component(s):
Lecture

MAST 656 Differential Geometry (3 credits)

Description:
Mappings, functions and vectors fields on Rn, inverse and implicit function theorem, differentiable manifolds, immersions, submanifolds, Lie groups, transformation groups, tangent and cotangent bundles, vector fields, flows, Lie derivatives, Frobenius' theorem, tensors, tensor fields, differential forms, exterior differential calculus, partitions of unity, integration on manifolds, Stokes' theorem, Poincaré lemma, introduction to symplectic geometry and Hamiltonian systems.

Component(s):
Lecture

MAST 657 Manifolds (3 credits)

Component(s):
Lecture

MAST 658 Lie Groups (3 credits)

Component(s):
Lecture

Analysis Courses

MAST 661 Topics in Analysis (3 credits)

Component(s):
Lecture

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

MAST 662 Functional Analysis I (3 credits)

Description:
This course will be an introduction to the theory of Hilbert spaces and the spectral analysis of self-adjoint and normal operators on Hilbert spaces. Applications could include Stone's theorem on one parameter groups and/or reproducing kernel Hilbert spaces.

Component(s):
Lecture

MAST 663 Introduction to Ergodic Theory (3 credits)

Description:
This course covers the following topics: measurable transformations, functional analysis review, the Birkhoff Ergodic Theorem, the Mean Ergodic Theorem, recurrence, ergodicity, mixing, examples, entrophy, invariant measures and existence of invariant measures.

Component(s):
Lecture

MAST 664 Dynamical Systems (3 credits)

Description:
An introduction to the range of dynamical behaviour exhibited by one-dimensional dynamical systems. Recurrence, hyperbolicity, chaotic behaviour, topological conjugacy, structural stability, and bifurcation theory for one-parameter families of transformation. The study of unimodal functions on the interval such as the family Fr (X) = rx (1-x), where $0 \leq r \leq 4$. For general continuous maps of the interval, the structure of the set of periodic orbits, for example, is found in the theorem of Sarkovskii.

Component(s):
Lecture

MAST 665 Complex Analysis (3 credits)

Description:
Review of Cauchy-Riemann equations, holomorphic and meromorphic functions, Cauchy integral theorem, calculus of residues, Laurent series, elementary multiple-valued functions, periodic meromorphic functions, elliptic functions of Jacobi and Wierstrass, elliptic integrals, theta functions. Riemann surfaces, uniformization, algebraic curves, abelian integrals, the Abel map, Riemann theta functions, Abel's theorem, Jacobi varieties, Jacobi inversion problem. Applications to differential equations.

Component(s):
Lecture

MAST 666 Differential Equations (3 credits)

Component(s):
Lecture

MAST 667 Reading Course in Analysis (3 credits)

Component(s):
Reading

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

MAST 668 Transform Calculus (3 credits)

Component(s):
Lecture

MAST 669 Measure Theory (3 credits)

Description:
Measure and integration, measure spaces, convergence theorems, Radon-Nikodem theorem, measure and outer measure, extension theorem, product measures, Hausdorf measure, Lp-spaces, Riesz theorem, bounded linear functionals on C(X), conditional expectations and martingales.

Component(s):

Lecture

Statistics and Actuarial Mathematics 600-level Courses

MAST 670 Mathematical Methods in Statistics (3 credits)

Description:
This course will discuss mathematical topics which may be used concurrently or subsequently in other statistics stream courses. The topics will come mainly from the following broad categories; 1) geometry of Euclidean space; 2) matrix theory and distribution of quadratic forms; 3) measure theory applications (Reimann-Stieltjes integrals); 4) complex variables (characteristic functions and inversion); 5) inequalities (Cauchy-Schwarz, Holder, Minkowski, etc.) and numerical techniques (Newton-Raphson algorithm, scoring method, statistical differentials); 6) some topics from probability theory.

Component(s):
Lecture

MAST 671 Probability Theory (3 credits)

Description:
Axiomatic construction of probability; characteristic and generating functions; probabilistic models in reliability theory; laws of large numbers; infinitely divisible distributions; the asymptotic theory of extreme order statistics.

Component(s):
Lecture

MAST 672 Statistical Inference I (3 credits)

Description:
Order statistics; estimation theory; properties of estimators; maximum likelihood method; Bayes estimation; sufficiency and completeness; interval estimation; shortest length confidence interval; Bayesian intervals; sequential estimation.

Component(s):
Lecture

MAST 673 Statistical Inference II (3 credits)

Description:
Testing of hypotheses; Neyman-Pearson theory; optimal tests; linear hypotheses; invariance; sequential analysis.

Component(s):
Lecture

MAST 674 Multivariate Analysis (3 credits)

Description:
An introduction to multivariate distributions will be provided; multivariate normal distribution and its properties will be investigated. Estimation and testing problems related with multivariate normal populations will be discussed with emphasis on Hotelling's generalized T2 and Wishart distribution. Other multivariate techniques including MANOVA; canonical correlations and principal components may also be introduced.

Component(s):
Lecture

MAST 675 Sample Surveys (3 credits)

Description:
A review of statistical techniques and simple random sampling, varying probability sampling, stratified sampling, cluster and systematic sampling-ratio and product estimators.

Component(s):
Lecture

MAST 676 Linear Models (3 credits)

Description:
Matrix approach to development and prediction in linear models will be used. Statistical inferences on the parameters will be discussed after development of proper distribution theory. The concept of generalized inverse will be fully developed and analysis of variance models with fixed and mixed effects will be analyzed.

Component(s):
Lecture

MAST 677 Time Series (3 credits)

Description:
Statistical analysis of time series in the time domain. Moving average and exponential smoothing methods to forecast seasonal and

non-seasonal time series, construction of prediction intervals for future observations, Box-Jenkins ARIMA models and their applications to forecasting seasonal and non-seasonal time series. A substantial portion of the course will involve computer analysis of time series using computer packages (mainly MINITAB). No prior computer knowledge is required.

Component(s):
Lecture

MAST 678 Statistical Consulting and Data Analysis (3 credits)

Component(s):
Lecture

MAST 679 Topics in Statistics and Probability (3 credits)

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

Applied Mathematics Courses

MAST 680 Topics in Applied Mathematics (3 credits)

Component(s):
Lecture

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

MAST 681 Optimization (3 credits)

Description:
Introduction to nonsmooth analysis: generalized directional derivative, generalized gradient, nonsmooth calculus; connections with convex analysis. Mathematical programming: optimality conditions; generalized multiplier approach to constraint qualifications and sensitivity analysis. Application of the theory: functions defined as pointwise maxima of a family of functions; minimizing the maximal eigenvalue of a matrix-valued function; variational analysis of an extended eigenvalue problem.

Component(s):
Lecture

MAST 682 Matrix Analysis (3 credits)

Description:
Jordan canonical form and applications, Perron-Frobenius theory of nonnegative matrices with applications to economics and biology, generalizations to matrices which leave a cone invariant.

Component(s):
Lecture

MAST 683 Numerical Analysis (3 credits)

Description:
This course consists of fundamental topics in numerical analysis with a bias towards analytical problems involving optimization integration, differential equations and Fourier transforms. The computer language C++ will be introduced and studied as part of this course; the use of “functional programming” and graphical techniques will be strongly encouraged. By the end of the course, students should have made a good start on the construction of a personal library of tools for exploring and solving mathematical problems numerically.

Component(s):
Lecture

MAST 684 Quantum Mechanics (3 credits)

Description:
The aim of this course is two-fold: (i) to provide an elementary account of the theory of non-relativistic bound systems, and (ii) to give an introduction to some current research in this area, including spectral geometry.

Component(s):
Lecture

MAST 685 Approximation Theory (3 credits)

Component(s):
Lecture

MAST 686 Reading Course in Applied Mathematics (3 credits)

Component(s):
Reading

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

MAST 687 Control Theory (3 credits)

Description:
Linear algebraic background material, linear differential and control systems, controllability and observability, properties of the attainable set, the maximal principle and time-optimal control.

Component(s):
Lecture

MAST 688 Stability Theory (3 credits)

Component(s):
Lecture

MAST 689 Variational Methods (3 credits)

Component(s):
Lecture

Algebra and Logic Courses

MAST 691 Mathematical Logic (3 credits)

Component(s):
Lecture

MAST 692 Advanced Algebra I (3 credits)

Description:

Field extensions, normality and separability, normal closures, the Galois correspondence, solution of equations by radicals, application of Galois theory, the fundamental theorem of algebra.

Component(s):
Lecture

MAST 693 Algebraic Number Theory (3 credits)

Description:
Dedekind domains; ideal class groups; ramification; discriminant and different; Dirichlet unit theorem; decomposition of primes; local fields; cyclotomic fields.

Component(s):
Lecture

MAST 694 Group Theory (3 credits)

Description:
Introduction to group theory, including the following topics: continuous and locally compact groups, subgroups and associated homogeneous spaces. Haar measures, quasi-invariant measures, group extensions and universal covering groups, unitary representations, Euclidean and Poincaré groups, square integrability of group representations with applications to image processing.

Component(s):
Lecture

MAST 696 Advanced Algebra II (3 credits)

Component(s):
Lecture

MAST 697 Reading Course in Algebra (3 credits)

Component(s):
Reading

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

MAST 698 Category Theory (3 credits)

Component(s):
Lecture

MAST 699 Topics in Algebra (3 credits)

Component(s):
Lecture

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

Statistics and Actuarial Mathematics 700-level Courses

MAST 702 Project - Stage I (3 credits)

Prerequisite/Corequisite:
Permission of the project supervisor and the Graduate Program Director is required.

Description:
This course offers a review of the literature in the area of the proposed project.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.
-

MAST 703 Project - Stage II (3 credits)

Prerequisite/Corequisite:
Permission of the project supervisor and the Graduate Program Director is required.

Description:
This course involves the formulation of the project proposal and development of the theoretical framework and methodology.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

MAST 704 Project - Stage III (3 credits)

Prerequisite/Corequisite:
Permission of the project supervisor and the Graduate Program Director is required.

Description:
This course involves investigations and research leading to obtaining results in the project.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

MAST 705 Project - Stage IV (3 credits)

Prerequisite/Corequisite:
Permission of the project supervisor and the Graduate Program Director is required.

Description:
This course involves the conclusion of the research and writing of the first draft of the project report.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

MAST 706 Project - Stage V (3 credits)

Prerequisite/Corequisite:
Permission of the project supervisor and the Graduate Program Director is required.

Description:
This course involves the completion of the written project report.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

MAST 720 Survival Analysis (3 credits)

Description:
Parametric and non-parametric failure time models; proportional hazards; competing risks.

Component(s):
Lecture

MAST 721 Advanced Actuarial Mathematics (3 credits)

Description:
General risk contingencies; advanced multiple life theory; population theory; funding methods and dynamic control.

Component(s):
Lecture

MAST 722 Advanced Pension Mathematics (3 credits)

Description:
Valuation methods, gains and losses, stochastic returns, dynamic control.

Component(s):
Lecture

MAST 723 Portfolio Theory (3 credits)

Description:
Asset and liability management models, optimal portfolio selection, stochastic returns, special topics.

Component(s):
Lecture

MAST 724 Risk Theory (3 credits)

Description:
General risk models; renewal processes; Cox processes; surplus control.

Component(s):
Lecture

MAST 725 Credibility Theory (3 credits)

Description:
Classical, regression and hierarchical Bayes models, empirical credibility, robust credibility, special topics.

Component(s):
Lecture

MAST 726 Loss Distributions (3 credits)

Description:
Heavy tailed distributions, grouped/censured data, point and interval estimation, goodness-of-fit, model selection.

Component(s):
Lecture

MAST 727 Risk Classification (3 credits)

Description:
Cluster analysis, principal components, discriminant analysis, Mahalanobis distance, special topics.

Component(s):
Lecture

MAST 728 Reading Course in Actuarial Mathematics (3 credits)

Component(s):
Reading

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

MAST 729 Selected Topics in Actuarial Mathematics (3 credits)

Component(s):
Lecture

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

Mathematics MA/MSc Thesis and Literature Courses.

MAST 700 Thesis (27 credits)

Component(s):
Thesis Research

Mathematics PhD Courses

The PhD courses offered by the Department of Mathematics and Statistics fall into the following categories:

Number Theory and Computational Algebra Courses

Analysis Courses
Physics and Differential Geometry Courses
Dynamical Systems Courses
Statistics and Actuarial Mathematics Courses

Elective Courses

Number Theory and Computational Algebra Courses

MAST 830 Cyclotomic Fields (3 credits)

Description:
L-series, Dirichlet theorem, Gauss sums, Stickelberger theorem, class groups and class number, circular units, analytic formulae.

Component(s):
Lecture

MAST 831 Class Field Theory (3 credits)

Description:
Local and global class field theory, ideles and adeles, reciprocity laws, existence theorem.

Component(s):
Lecture

MAST 832 Elliptic Curves (3 credits)

Description:
Introduction to elliptic curves over finite fields, local and global fields, rational points, Mordell-Weil theorem, formal groups.

Component(s):
Lecture

MAST 833 Selected Topics in Number Theory (3 credits)

Description:
The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

MAST 834 Selected Topics in Computational Algebra (3 credits)

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

Analysis Courses

MAST 837 Selected Topics in Analysis (3 credits)

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

MAST 838 Selected Topics in Pure Mathematics (3 credits)

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

Mathematical Physics and Differential Geometry Courses

MAST 840 Lie Groups (3 credits)

Description:

The mathematical theory of Lie groups and introduction to their representation theory with applications to mathematical physics. Topics will include classical Lie groups, one-parameter subgroups, Lie algebras and the exponential mapping, adjoint and coadjoint representations, roots and weights, the Killing form, semi-direct products, Haar measure and decompositions such as those of Cartan and Iwasawa. The theory of unitary representations on Hilbert spaces. Physical applications of compact Lie groups (such as SU(2) and SU(3)) and non-compact groups (such as the Lorentz and Poincaré groups).

Component(s):

Lecture

MAST 841 Partial Differential Equations (P.D.E.'s) (3 credits)

Description:
Introduction to the mathematical theory of P.D.E.'s, including applications to mathematical physics. Topics will include Sturm-Liouville systems, boundary value and eigenvalue problems, Green's functions for time-independent and time-dependent equations, Laplace and Fourier transform methods. Additional topics will be selected from the theory of elliptic equations (e.g. Laplace and Poisson equations), hyperbolic equations (e.g., the Cauchy problem for the wave equation) and parabolic equations (e.g., the Cauchy problem for the heat equation). Links will be made with the theory of differential operators and with analysis on manifolds.

Component(s):
Lecture

MAST 851 Differential Geometric Methods in Physics (3 credits)

Description:
Manifolds, differential systems, Riemannian, Kahlerian and symplectic geometry, bundles, supermanifolds with applications to relativity, quantization, gauge field theory and Hamiltonian systems.

Component(s):
Lecture

MAST 852 Algebro-Geometric Methods in Physics (3 credits)

Description:
Algebraic curves, Jacobi varieties, theta functions, moduli spaces of holomorphic bundles and algebraic curves, rational maps, sheaves and cohomology with applications to gauge theory, relativity and integrable systems.

Component(s):
Lecture

MAST 853 Gauge Theory and Relativity (3 credits)

Description:
Yang-Mills theory, connections of fibre bundles, spinors, twistors, classical solutions, invariance groups, instantons, monopoles, topological invariants, Einstein equations, equations of motion, Kaluza-Klein, cosmological models, gravitational singularities.

Component(s):
Lecture

MAST 854 Quantization Methods (3 credits)

Description:
Geometric quantization, Borel quantization, Mackey quantization, stochastic and phase space quantization, the problems of prequantization and polarization, deformation theory, dequantization.

Component(s):
Lecture

MAST 855 Spectral Geometry (3 credits)

Description:
Schrödinger operators; min-max characterization of eigenvalues, geometry of the spectrum in parameter space, kinetic potentials, spectral approximation theory, linear combinations and smooth transformations of potentials, applications to the N-body problem.

Component(s):
Lecture

MAST 856 Selected Topics in Mathematical Physics (3 credits)

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

MAST 857 Selected Topics in Differential Geometry (3 credits)

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

Dynamical Systems Courses

MAST 860 Differentiable Dynamical Systems (3 credits)

Description:
The study of dynamical properties of diffeomorphisms or of one-parameter groups of diffeomorphisms (flows) defined on differentiable manifolds. Periodic points, the non-wandering set, and more general invariant sets. Smale's horseshoe, Anosov, and Morse-Smale

systems, general hyperbolic systems, the stable manifold theorem, various forms of stability, Markov partitions and symbolic dynamics.

Component(s):
Lecture

MAST 861 Absolutely Continuous Invariant Measures (3 credits)

Description:
Review of functional analysis, Frobenius-Perron operator and its properties, existence of absolutely continuous invariant measures for piecewise expanding transformations, properties of invariant densities, compactness of invariant densities, spectral decomposition of the Frobenius-Perron operator, bounds on the number of absolutely continuous invariant measures, perturbations of absolutely continuous invariant measures.

Component(s):
Lecture

MAST 862 Numerical Analysis of Nonlinear Problems (3 credits)

Description:
Continuation of solutions, homotopy methods, asymptotic stability, bifurcations, branch switching, limit points and higher order singularities, Hopf bifurcation, control of nonlinear phenomena, ODE with boundary and integral constraints, discretization, numerical stability and multiplicity, periodic solutions, Floquet multipliers, period doubling, tori, control of Hopf bifurcation and periodic solutions, travelling waves, rotations, bifurcation phenomena in partial differential equations, degenerate systems.

Component(s):
Lecture

MAST 863 Bifurcation Theory of Vector Fields (3 credits)

Description:
Local and global bifurcations. Generalized Hopf bifurcation and generalized homoclinic bifurcation. Hamiltonian systems and systems close to Hamiltonian systems, local codimension two bifurcations of flows.

Component(s):
Lecture

MAST 865 Selected Topics in Dynamical Systems (3 credits)

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

Statistics and Actuarial Mathematics 800-level Courses

MAST 871 Advanced Probability Theory (3 credits)

Description:
Definition of probability spaces, review of convergence concepts, conditioning and the Markov property, introduction to stochastic processes and martingales.

Component(s):
Lecture

MAST 872 Stochastic Processes (3 credits)

Description:
Stochastic sequences, martingales and semi-martingales, Gaussian processes, processes with independent increments, Markov processes, limit theorems for stochastic processes.

Component(s):
Lecture

MAST 873 Advanced Statistical Inference (3 credits)

Description:
Decision functions, randomization, optimal decision rules, the form of Bayes' rule for estimation problems, admissibility and completeness, minimax, rules, invariant statistical decisions, admissible and minimax decision rules, uniformly most powerful tests, unbiased tests, locally best tests, general linear hypothesis, multiple decision problems.

Component(s):
Lecture

MAST 874 Advanced Multivariate Inference (3 credits)

Description:
Wishart distribution, analysis of dispersion , tests of linear hypotheses, Rao's test for additional information, test for dimensionality, principal component analysis, discriminant analysis, Mahalanobis distance, cluster analysis, relations with sets of variates.

Component(s):
Lecture

MAST 875 Advanced Sampling (3 credits)

Description:
Unequal probability sampling, multistage sampling, super population models, Bayes and empirical Bayes estimation, estimation of variance from complex surveys, non-response errors and multivariate auxiliary information.

Component(s):
Lecture

MAST 876 Survival Analysis (3 credits)

Description:
Failure time models, inference in parametric models, proportional hazards, non-parametric inference, multivariate failure time data, competing risks.

Component(s):
Lecture

MAST 877 Reliability Theory (3 credits)

Description:
Reliability performance measures, unrepairable systems, repairable systems, load-strength reliability models, distributions with monotone failure rates, analysis of performance effectiveness, optimal redundancy, heuristic methods in reliability.

Component(s):
Lecture

MAST 878 Advanced Risk Theory (3 credits)

Description:
Generalizations of the classical risk model, renewal processes, Cox processes, diffusion models, ruin theory and optimal surplus control.

Component(s):
Lecture

MAST 881 Selected Topics in Probability, Statistics and Actuarial Mathematics (3 credits)

Notes:

- The content varies from term to term and from year to year. Students may re-register for this course provided the course content has changed. Changes in content are indicated by the title of the course.

Seminars

MAST 858 Seminar in Mathematical Physics (3 credits)

Component(s):
Seminar

MAST 859 Seminar in Differential Geometry (3 credits)

Component(s):
Seminar

MAST 868 Seminar in Dynamical Systems (3 credits)

Component(s):
Seminar

MAST 889 Seminar in Probability, Statistics and Actuarial Mathematics (3 credits)

Component(s):
Seminar

MAST 898 Seminar in Number Theory (3 credits)

Component(s):
Seminar

MAST 899 Seminar in Computational Algebra (3 credits)

Component(s):
Seminar

Thesis and Comprehensive Examinations Courses

MAST 890 Comprehensive Examination A (6 credits)

Description:
This is a written examination, consisting of two parts. The first part of the Comprehensive A examination tests the candidate's general knowledge of fundamental mathematical or statistical concepts. It will normally be completed within one year (3 terms) of the candidate's entry into the program or the equivalent of part-time study. The second part of the Comprehensive A examination tests the candidate's knowledge of topics in their area of specialization. The material will be chosen from the list of course descriptions given by the Graduate
Studies Committee in consultation with the candidate's research supervisor and the student's Advisory Committee. Candidates are allowed at most one failure in the Part A examination.

Component(s):
Thesis Research

MAST 891 Comprehensive Examination B (6 credits)

Description:
The Comprehensive B examination is an oral presentation of the candidate's plan of his or her doctoral thesis in front of the student's Advisory Committee. It is normally taken within two-three years of the candidate's entry into the program (or the equivalent of part-time study) and at least one year before the expected completion of the thesis.

Component(s):
Thesis Research

MAST 892 Doctoral Thesis (60 credits)

Description:
Concurrently with the preparation for the Part B exam, the students will be engaging in their research work towards the dissertation. After submitting the doctoral thesis, the candidate is required to pass an oral defence of the thesis. The doctoral thesis must make an original contribution to mathematical knowledge, at a level suitable for publication in a reputable professional journal in the relevant

area.

Component(s):

Thesis Research

Philosophy Courses

A. History of Philosophy Courses

PHIL 607 Kant (3 credits)

Description:
This course studies Kant and his work in its historical context, such as the Critique of Pure Reason or other texts of Kant.

Component(s):
Seminar

PHIL 609 Selected Topics in the History of Philosophy (3 credits)

Description:
Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.

PHIL 612 Ancient Philosophy (3 credits)

Description:
This course studies the texts central to the development of ancient philosophical thought, such as works by Plato and Aristotle.

Component(s):
Seminar

Notes:

- Students who have received credit for PHIL601 or PHIL602 may not take this course for credit.

PHIL 613 Medieval Philosophy (3 credits)

Description:
This course analyzes and discusses texts central to the development of medieval philosophical thought, in the Arabic and Latin traditions. Works by Avicenna, Averroes, and Thomas Aquinas are studied.

Component(s):
Seminar

Notes:

- Students who have received credit for PHIL 604 may not take this course for credit.

PHIL 614 Modern Philosophy (3 credits)

Description:
This course studies central problems of 17th- and 18th-century European philosophy, from Bacon and Galileo at the beginning of the Scientific Revolution, through continental Rationalism (e.g., Descartes and Leibniz), to Hume and the legacy of British Empiricism.

Component(s):
Seminar

PHIL 615 19th-Century Philosophy (3 credits)

Description:
This course studies the work of 19th-century philosophers in their historical context, such as Goethe, Schelling, Herder, and Hegel.

Component(s):
Seminar

PHIL 616 Selected Topics in the History and Philosophy of Science (3 credits)

Description:
Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.

PHIL 617 Origins of Analytic Philosophy (3 credits)

Description:
This course provides an analysis of some of the central philosophical works in the analytic tradition from the late 19th and early 20th centuries. Works by central figures such as Frege, Russell, Wittgenstein or Carnap are covered.

Component(s):
Seminar

Notes:

- Students who have received credit for PHIL 663 may not take this course for credit.

PHIL 618 Origins of Continental Philosophy (3 credits)

Description:
Students study the sources of contemporary continental European thought in the 19th century and early 20th century, which are traced to German Idealism and Romanticism, Marxism, and early phenomenology. Authors studied may include Kant, Fichte, Schelling, Hegel, Marx, Kierkegaard, Nietzsche, and Husserl.

Component(s):
Seminar

Notes:

- Students who have received credit for PHIL 662 may not take this course for credit.

B. Aesthetics, Moral Philosophy, or Social and Political Philosophy Courses

PHIL 621 Value Theory (3 credits)

Description:
Students examine a topic in value theory, such as the exploration of different conceptions of well-being, the good, or of virtues.

Component(s):
Seminar

PHIL 623 Issues in Ethical Theory (3 credits)

Description:
Students analyse central theories in normative ethics such as consequentialism, deontology, and contractualism; and in meta-ethnics such as realism, relativism, and moral nihilism.

Component(s):
Seminar

PHIL 624 Moral Problems (3 credits)

Description:
Students investigate one or more approaches to difficult moral problems that confront us today, such as the need to find appropriate responses to war, revolution, tyranny, terrorism, global poverty, violence against women, and abortion.

Component(s):
Seminar

PHIL 625 Aesthetics (3 credits)

Description:
This course examines central problems in the history of aesthetics and the philosophy of art, including the nature of beauty, the sublime, and the ontology of a work of art; or a study of a single text or author, such as Aristotle's Poetics or Kant's Critique of Judgment.

Component(s):
Seminar

PHIL 626 Political Philosophy (3 credits)

Description:
This course investigates central theories in political philosophy, concerning distributive justice, the theory of just war, democracy, civil disobedience, freedom of speech, responsibilities to future generations, human rights, global justice, multiculturalism, liberalism, socialism, anarchism, or feminism.

Component(s):
Lecture

PHIL 627 Marx (3 credits)

Description:
Students study central works by Karl Marx. The course may also address important interpretations of Marx's work, such as those developed by Analytic Marxists, Sartre, Althusser, Lukacs, or the Frankfurt School.

Component(s):
Seminar

PHIL 628 Philosophy of Law (3 credits)

Description:
This course studies a central issue in philosophy of law, such as personality, property, rights, interpretation, responsibility, and punishment; or the jurisprudential perspective of such figures as Hart, Dworkin, Alexy, Luhmann, Weinrib, Waldron, Greenberg, Finnis, and Murphy.

Component(s):
Seminar

Notes:

- Students who have received credit for PHIL 675 may not take this course for credit.

PHIL 629 Values and Biotechnology (3 credits)

Description:
This course examines normative issues around genetic engineering or other biotechnologies, including moral, metaphysical, epistemic or political questions.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a PHIL 429, PHIL 498, BIOL 529, PHIL 530, or PHIL 633 number may not take this course for credit unless the instructor permits this.

PHIL 631 Theories of Justice (3 credits)

Description:
This course examines important philosophical contributions to debates about justice, such as distributive justice, political justice, human rights, global justice, and inter-generational justice.

Component(s):
Seminar

PHIL 632 Environmental Philosophy (3 credits)

Description:
This course provides an analysis of the basic assumptions underlying one or more philosophical views of the natural world, such as ethical, aesthetic and ecofeminist theories as well as the theory of deep ecology.

Component(s):
Seminar

PHIL 633 Selected Topics in Value Theory (3 credits)

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.

C. Metaphysics, Epistemology, or Philosophy of Science Courses

PHIL 634 Selected Topics in Epistemology (3 credits)

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.

PHIL 641 Philosophical Foundations of Biology (3 credits)

Description:
This course helps students critically engage biology's philosophical foundations. Topics typically include the nature of scientific reasoning, testing, and evidence in biology; how best to discover, define, and apply biological concepts; and how to structure the aims of biology to fit our diverse and changing societies.

Component(s):
Seminar

PHIL 643 Selected Topics in Metaphysics (3 credits)

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.
- Students who have received credit for this topic under a PHIL 640 or PHIL 642 number may not take this course for credit.

PHIL 644 Philosophy of Science (3 credits)

Description:
This course provides an analysis of philosophical issues raised by science, such as those concerning scientific evidence, concepts, theories, and explanation; or the intersection with ethical and social problems.

Component(s):
Seminar

Notes:

- Students who have received credit for PHIL 650 or 657 may not take this course for credit.

PHIL 645 Philosophy of Mathematics (3 credits)

Description:
This course investigates some of the central issues and theories in the philosophy of mathematics such as logicism, intuitionism, or formalism. Other topics may include the nature of mathematical truth or the ontology and epistemology of mathematics.

Component(s):
Seminar

PHIL 646 Philosophy of Language (3 credits)

Description:
Students analyse some aspects of the philosophy of language, such as the nature of meaning, the relation between language and thought, or the relation between language and the world.

Component(s):
Seminar

Notes:

- Students who have received credit for PHIL 651 may not take this course for credit.

PHIL 647 Philosophy of Mind (3 credits)

Description:
Students investigate central issues in the philosophy of mind, such as the architecture and modularity of the mind, the mind-body problem and mental causation, or the metaphysics and function of consciousness.

Component(s):
Seminar

Notes:

- Students who have received credit for PHIL 664 may not take this course for credit.

PHIL 648 Philosophy of Social Science (3 credits)

Description:
Students study methods of various social and human sciences and the differences in aims between, for instance, understanding, explaining, experiencing, and being liberated from oppression.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a PHIL 655 number may not take this course for credit.

PHIL 649 Phenomenology (3 credits)

Description:
Drawing from classical and recent phenomenlogical philosophy, students study selected central figures such as Husserl, Heidegger, and issues such as meaning, the body, temporality, and phenomenological reduction.

Component(s):
Seminar

Notes:

- Students who have received credit for PHIL 668 may not take this course for credit.

PHIL 652 Selected Topics in Logic (3 credits)

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.
- Students who have received credit for PHIL 611 may not take this course for credit

PHIL 656 Selected Topics in Analytic Philosophy (3 credits)

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.
- Students who have received credit for this topic under PHIL 666 may not take this course for credit.

PHIL 658 Selected Topics in Continental Philosophy (3 credits)

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course

content has changed.

PHIL 659 Selected Topics in Metaphysics, Epistemology, or Philosophy of Science (3 credits)

Description:
Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed. Changes in content are indicated by the letter following the course number, e.g. PHIL 659A, PHIL 659B, etc.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.

To be classified each year by the Graduate Program Director

PHIL 672 Tutorial (3 credits)

Component(s):
Independent Study

PHIL 678 Topics in Current Research (3 credits)

Component(s):
Seminar

PHIL 698 The Teaching of Philosophy (3 credits)

Component(s):
Seminar

Philosophy Research Thesis and Monograph Thesis

PHIL 693 Research Thesis (27 credits)

Description:

Students write and defend a thesis in the form of a major research paper on a topic to be determined in consultation with a faculty member, who serves as the supervisor. This form of master's thesis in philosophy is expected to consider all of the relevant scholarship pertaining to its argument and to make an original contribution to knowledge, in a manner comparable to a journal article. An oral defence of the research thesis is required before an examining committee consisting of the supervisor and one other professor chosen by the Graduate Program Director in consultation with the supervisor.

Component(s):
Thesis Research

Notes:

- The research thesis is graded accepted or rejected.

PHIL 696 Monograph Thesis (27 credits)

Description:
Students write and defend a thesis in the form of a 3-4 chapter monograph on a topic to be determined in consultation with a faculty member, who serves as a supervisor. The thesis is written under the guidance of a member of the Department. This form of master's thesis in philosophy is expected to synthesize and review previous results of scholarship and then make an original contribution to knowledge within that scholarly context. An oral defence of the thesis is required before an examining committee consisting of the supervisor and two other professors chosen by the Graduate Program Director in consultation with the thesis supervisor.

Component(s):
Thesis Research

Notes:

- The thesis is graded accepted or rejected.

Physics Courses

Physics MSc and PhD Courses

The graduate courses offered by the Department of Physics fall into the following categories:

Topics in Quantum and High Energy Physics
Topics in Condensed Matter Physics
Topics in Theoretical Physics
Topics in Biomedical Physics
Topics in Applied Physics

Topics in Quantum and High Energy Physics

PHYS 601 Advanced Quantum Mechanics I (3 credits)

Description:
This course reviews the mathematical foundations of quantum mechanics, Heisenberg, Schroedinger, and interaction representations; time-dependent perturbation theory and the golden rule; collision theory, Born approximation, T-matrix and phase shifts; angular momentum theory: eigenvalues and eigenvectors, spherical harmonics, rotations and spin, additions theorems and their applications.

Component(s):
Lecture

PHYS 602 Advanced Quantum Mechanics II (3 credits)

Description:
The following applications are examined: non-relativistic theory - systems of identical particles, second quantization, Hartree-Fock theory, as well as path integral formulation of quantum mechanics; relativistic theory: Dirac and Klein-Gordon equations, positron theory, propogator theory and their applications; field quantization, radiative effects, Dirac and Majorana spinors, Noether's theorem.

Component(s):
Lecture

Notes:

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PHYS 603 High Energy Physics (3 credits)

Description:
This course discusses symmetries and groups; antiparticles; electrodynamics of spinless particles, the Dirac equation and its implications for the electrodynamics of spin 1/2 particles. A general discussion of loops, renormalization and running coupling constants, hadronic structure and partons, is used to introduce the principles of Quantum Chromodynamics and Electroweak Interactions. The course concludes with an exposition of gauge symmetries, the Weinberg-Salam model, and Grand Unification.

Component(s):
Lecture

Notes:

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PHYS 609 Selected Topics in Quantum Physics (3 credits)

Description:
This course reflects the research interests of the physics faculty in quantum physics and/or those of the graduate students working with them.

Component(s):
Lecture

Notes:

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PHYS 608 Selected Topics in High Energy Physics (3 credits)

Description:
This course reflects the research interests of the physics faculty in high energy physics and/or those of the graduate students working with them.

Component(s):
Lecture

Topics in Condensed Matter Physics

PHYS 636 Condensed Matter Physics I (3 credits)

Description:
In this course, students are introduced to the quantum theory of solids and their properties. Drude and Sommerfeld theory of metals, crystal lattices, reciprocal lattice, electron levels in periodic potentials, band theory and Fermi surface, tight-binding method, semi-classical model of electron dynamics in metals, relaxation-time approximation are also explored. Vibrations of crystals (phonons), heat conductivity, homogeneous semiconductors (p-n junctions) are discussed. Selected topics may include magnetism, magneto-transport, or the role of topology in solids.

Component(s):
Lecture

PHYS 637 Condensed Matter Physics II (3 credits)

Description:
is course offers an introduction to the problem of many-electron interactions by introducing second quantization notation and mean-field theory as an approximation to solve complex many-body problems. Quantum phases like magnets and superconductors are studied using mean-field theory along with associated phase transitions. The course introduces the semi-classical and quantum theory of transport in quantum systems (Boltzmann's and Landauer's equations). Selected topics may include collective excitations, 2D Dirac materials, or integer and fractional quantum Hall effects.

Component(s):
Lecture

PHYS 639 Selected Topics in Condensed Matter Physics (3 credits)

Description:
This course reflects the research interests of the physics faculty in condensed matter physics and/or those of the graduate students working with them.

Component(s):
Lecture

Notes:

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PHYS 638 Additional Module in Condensed Matter Physics (1 credits)

Description:
This module is intended for engineering students wishing to take physics courses while satisfying their credit requirements. It should be taken concurrently with the respective 3-credit physics course (PHYS 639); it includes additional material and assignments.

Component(s):
Reading

Topics in Theoretical Physics

PHYS 642 Statistical Physics (3 credits)

Description:
This course covers statistical ensembles (micro, macro, and grand canonical); introduces Maxwell-Boltzmann, Fermi-Dirac, and Bose-Einstein distributions for the microstates and their applications, and formulates a statistical treatment of the laws of thermodynamics.

These concepts are applied to classic problems like black-body radiation, thermodynamics of free electrons, and phase transitions involving ferromagnetism and the Ising model. It covers fluctuations and Onsager relations, Nyquist's theorem, Brownian motion and the diffusion equation, and selected topics on transport.

Component(s):
Lecture

Notes:

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PHYS 644 Advanced Classical Mechanics and Relativity (3 credits)

Description:
This course covers generalized coordinates, Lagrange's equations, method of Lagrange multipliers, variational formulation, Hamilton's equations of motion, canonical transformations, Hamilton-Jacobi theory, special theory of relativity, Einstein's axioms, Lorentz transformations, form invariance and tensors, four-vectors, gravity.

Component(s):
Lecture

Notes:

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PHYS 646 Electrodynamics (3 credits)

Description:
This course covers the electrostatic boundary-value problem with Green's function, Maxwell's equations, energy-momentum tensor, guided waves, dielectric wave-guides, fibre optics, radiation static field, multipole radiation, velocity and acceleration field, Larmor's formula, relativistic generalization, radiating systems, linear antenna, aperture in wave guide, scattering, Thompson scattering, Bremsstrahlung, Abraham-Lorentz equation, Breit-Wigner formula, Green's function for Helmholtz's equation. Noether's theorem.

PHYS 648 Non Linear Waves (3 credits)

Description:
Linear stability analysis and limitations, modulated waves and nonlinear dispersion relations, Korteweg-de Vries, sine-Gordon, and nonlinear Schrödinger equations. Hydro-dynamic, transmission-line, mechanical, lattice, and optical solitions. Applications in optical fibres, Josephson junction arrays. Inverse scattering method, conservation laws.

PHYS 649 Selected Topics in Theoretical Physics (3 credits)

Description:

This course reflects the research interests of the Physics faculty in theoretical physics and/or those of the graduate students working with them.

Component(s):
Lecture

Topics in Biomedical Physics

PHYS 660 Chemical Aspects of Biophysics (3 credits)

Description:
This course examines several aspects of the stability of protein structures including bonding and nonbonding interactions, energy profiles, Ramachandran plot, stabilization through protonation-deprotonation, interaction of macromolecules with solvents, the thermodynamics of protein folding, and ligand binding. The Marcus-theory of biological electron transfer is discussed. The course also introduces the students to several modern biophysical techniques such as electronic spectroscopies (absorption, fluorescence), X-ray absorption spectroscopy, NMR and EPR spectroscopy, IR and Raman spectroscopy, circular dichroism, and differential scanning calorimetry. Students further develop an in-depth knowledge of the course material through an individual project.

Component(s):
Lecture

PHYS 663 Quantitative Human Systems Physiology (3 credits)

Prerequisite/Corequisite:
Enrolment in a Science or Engineering program is required.

Description:
This course addresses important concepts of quantitative systems physiology and the physical bases of physiological function in different organ systems. The student becomes familiar with the structure and functional principles of the main physiological systems, and how to quantify them. These include the nervous, cardiovascular, respiratory and muscular systems. Important biophysical principles and quantitative physiological methods are presented. Topics may include the biophysics of muscle contractions, fluid dynamics in the cardiovascular system, respiration gas exchange and neuronal communication, and how the biophysics of neuronal communications can be used to image brain activity. Students develop in-depth knowledge of how to apply these principles to a specific system through an individual project.

Component(s):
Lecture

PHYS 665 Principles of Medical Imaging (3 credits)

Prerequisite/Corequisite:
Enrolment in a Science or Engineering program is required.

Description:
This course aims to introduce the physical principles associated with important medical imaging techniques used in medicine and in neuroscience research. The objective is to cover the whole imaging process in detail starting from the body entities to be imaged (e.g. structure, function, blood flow, neuronal activity), to the physical principles of data acquisition and finally the methods used for image data reconstruction. Important imaging modalities such as X-ray and computer tomography, magnetic resonance imaging, nuclear medicine, ultrasound, electrophysiology and optical imaging techniques are presented. Students develop an in-depth understanding of how to apply this knowledge for a specific imaging modality through an individual project.

Component(s):
Lecture

PHYS 666 Additional Module in Biophysics (1 credits)

Description:
This module is intended for engineering students wishing to take physics courses while satisfying their credit requirements. It should be taken concurrently with the respective 3-credit physics course (PHYS 667); it includes additional material and assignments.

Component(s):
Reading

PHYS 667 Selected Topics in Biophysics (3 credits)

Description:
This course reflects the research interests of the physics faculty in biophysics and/or those of the graduate students working with them.

Component(s):
Lecture

PHYS 668 Additional Module in Biomedical Physics (1 credits)

Description:
This module is intended for engineering students wishing to take physics courses while satisfying their credit requirements. It should be taken concurrently with the respective 3-credit physics course (PHYS 669); it includes additional material and assignments.

Component(s):
Reading

PHYS 669 Selected Topics in Biomedical Physics (3 credits)

Description:
This course reflects the research interests of the physics faculty in biomedical physics and/or those of the graduate students working

with them.

Component(s):
Lecture

Topics in Applied and Computational Physics

PHYS 678 Additional Module in Applied Physics (1 credits)

Description:
This module is intended for engineering students wishing to take physics courses while satisfying their credit requirements. It should be taken concurrently with the respective 3-credit physics course (PHYS 679); it includes additional material and assignments.

Component(s):
Reading

PHYS 679 Selected Topics in Applied Physics (3 credits)

Description:
This course reflects the research interests of the Physics faculty in Applied Physics and/or those of the graduate students working with them.

Component(s):
Lecture

PHYS 688 Additional Module in Computational Physics (1 credits)

Description:
This module is intended for engineering students wishing to take physics courses while satisfying their credit requirements. It should be taken concurrently with the respective 3-credit physics course (PHYS 689); it includes additional material and assignments.

Component(s):
Reading

PHYS 689 Selected Topics in Computational Physics (3 credits)

Description:
This course reflects the research interests of the physics faculty in high energy physics and/or those of the graduate students working with them.

Component(s):

Lecture

Master's Seminar, Thesis, and Comprehensive Examination Courses

PHYS 760 MSc Seminar on Selected Topics (3 credits)

Description:
Students must give one seminar in the field of their research and participate in weekly scientific writing and oral communication workshops. This course should be taken when a significant portion of the thesis is completed, but before the thesis is submitted. Writing a proposal (for a small grant or external scholarship) is part of the requirements for this course. The course in evaluated on a pass/fail basis. No substitution is permitted.

Component(s):
Seminar; Workshop

PHYS 790 Master's Research and Thesis (33 credits)

Description:
he thesis must represent the results of the student's original research work undertaken after admission to this program. Work previously published by the student may be used only as introductory or background subject matter. The thesis is examined by a supervisory committee. The thesis may be based on a study of a significant problem in physics or a research project conducted as part of the student's employment. Permission to submit a thesis in the latter category is granted in the event that: a. the student's employer furnishes written approval for the pursuit and reporting of the project; b. the student has research facilities which, in the opinion of the physics graduate studies committee, are adequate; c. arrangements can be made for supervision of the project by a faculty member of the Department of Physics; d. in all but exceptional cases, the student has direct supervision by a qualified supervisor at the site of the student's employment. The supervisor must be approved by the physics graduate studies committee. A written working agreement between the supervisor and the university are required; e. the proposed topic for the thesis, together with a brief statement outlining the proposed method of treatment, is approved by the physics graduate studies committee.

Component(s):
Thesis Research

PhD Seminar, Thesis, and Comprehensive Examination Courses

PHYS 861 Doctoral Seminar on Selected Topics I (3 credits)

Description:
Students must present one pedagogical seminar on a topic from physics to an advanced-level undergraduate student audience. This course is evaluated on a pass/fail basis. No substitution is permitted.

Component(s):
Seminar

PHYS 862 Doctoral Seminar on Selected Topics II (3 credits)

Description:
Students must give one seminar in the field of their research and participate in weekly scientific writing and oral communication workshops. This course should be taken when a significant portion of the thesis is completed, but before the thesis is submitted. Writing a proposal (for a small grant or external scholarship) is part of the requirements for this course. The course in evaluated on a pass/fail basis. No substitution is permitted.

Component(s):
Seminar; Workshop

PHYS 870 Comprehensive Examination and Research Proposal (6 credits)

Description:
The purpose of this course is to satisfy the department that the student is sufficiently prepared, in terms of background and ability, to pursue the research required for a PhD. Each student is required to prepare a written project in his/her field of research. The topic is general, and not part of the thesis work. The oral examination is based on the contents of this report. The Graduate Program Committee appoints an examination committee in consultation with the thesis supervisor. The supervisor is responsible for the subject chosen and also acts as a member of the examining committee for the oral presentation. The comprehensive examination must be completed within four months after the candidate's initial registration in the PhD program.

Component(s):
Lecture

Notes:

- The grade for this course is a Pass or Fail. In case of failure in the first attempt, only one more attempt is allowed to take place

PHYS 890 Doctoral Research and Thesis (69 credits)

Prerequisite/Corequisite:
A student who has passed the comprehensive examination is admitted to candidacy for the PhD degree. The student is allowed to continue working on a research project under the direction of a faculty member of the department only after passing the comprehensive examination.

Description:
The research is in areas which reflect the interests of the faculty and the facilities of the department. The thesis must make a distinct and original contribution to knowledge, and be presented in acceptable literary form.

Component(s):
Thesis Research

Political Science Courses

Political Science MA Courses

POLI 600 Public Policy and the Governmental Process in Canada (3 credits)

Description:
The course is designed to familiarize students with the structures and processes of policy-making in Canadian government. Particular attention is given to theories of public policy, the role of key institutions and agencies in the formulation and analysis of policy, and recent organizational developments in the executive-bureaucratic arena.

Component(s):
Seminar

POLI 601 Research Design (3 credits)

Description:
This course explores differing research philosophies, the principles of research design and research strategies. It also considers philosophical critiques of different approaches and practical aspects of conducting research.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 685 number may not take this course for credit.

POLI 603 International Relations Theory (3 credits)

Description:
This course explores the major theories, approaches and contemporary debates within international relations theory. Topics include the development of realism, liberalism, constructivism and critical approaches. Major aspects of international relations theory, such as security, political economy, and international organization, are also explored.

Component(s):
Seminar

POLI 604 Comparative Public Policy (3 credits)

Description:

This course analyses policy development in industrialized countries. It focuses on various areas such as economic, education, fiscal and social policies. Moreover, this course examines contributions that address methodological issues related to comparative research.

Component(s):
Seminar

POLI 605 Environmental Policy and Governance (3 credits)

Description:
Students in this seminar course conduct a theoretical and empirical survey of contemporary approaches to environmental policy development and implementation at various levels of governance, including municipal, national and international. Case studies may include toxic waste, oceans management, the impact of trade agreements, biodiversity conservation, and climate change.

Component(s):
Lecture

POLI 606 Policy Making and the National Purpose in Canada (3 credits)

Description:
This course focuses upon the American challenge to Canadian independence in the economic, cultural, defence and other spheres, and examines policy initiatives taken by Canadian governments and the various proposals advanced by nationalist groups to meet this challenge.

Component(s):
Lecture

POLI 607 Ageing and Public Policy (3 credits)

Description:
Substantial improvement in health, hygiene and working conditions combined with declining fertility rate is creating an important demographic shift. As a result, the number of individuals aged 65 and above is expected to double by 2031. This has multiple policy and political consequences across industrialized countries. The object of this course is to analyze this demographic shift from a comparative perspective.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 681 number may not take this course for credit.

POLI 608 Globalization and Regional Integration (3 credits)

Description:
A study of the long range historical tendencies towards large and complex interdependent organizations in the post industrial world. These trends juxtapose the regional confederation of the European community as well as the rising trade blocs of North America and the Pacific, with the development of a single political economic and cultural super-system of global scope.

Component(s):
Seminar

POLI 610 Economic Policy After Keynes (3 credits)

Description:
This course introduces students to the controversy surrounding the economics of Keynes and the implications of his work for the current problems of unemployment and growth. Interpretations of Keynes are explored in the context of the current eclipse of Keynesianism in public policy circles.

Component(s):
Seminar

POLI 611 Judicial Politics and Policy (3 credits)

Description:
This course considers the increased policy-making functions of Supreme Courts in systems that have statutory and entrenched bills of rights. By focusing on the interaction between courts and legislatures, and the increasing use of litigation strategies by interest groups, the implications of public policy in a rights context are examined.

Component(s):
Seminar

POLI 612 Public Policy and Business Cycles (3 credits)

Description:
This course explores the public policy of managing the business cycle. The emphasis is on both the theoretical literature associated with modern notions of managing the economic cycle and on applied case studies. The focus is both Canadian and comparative.

Component(s):
Seminar

POLI 613 Political Socialization: A Comparative Perspective (3 credits)

Description:
The course presents an overview of the central concepts and theories used in political socialization research. Students learn about the major sources of political opinions, attitudes and values. This course also investigates how political socialization is used in practice in Canadian politics and within several other sub-disciplines of political science.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 683 number may not take this course for credit.

POLI 614 Political Economy of Advanced Industrial Nations (3 credits)

Description:
The course provides an overview of the scholarly debate and research on political economy issues considered central to an examination of the political economy of advanced countries.

Component(s):
Seminar

POLI 615 The Politics of Citizenship in Canada (3 credits)

Description:
This course examines key debates in the study and practice of citizenship in Canada. It explores the different forces which are transforming our understanding of citizenship, including globalization, nationalism, welfare state reform, international migration, and multiculturalism. Topics include citizenship and social exclusion; social rights and the welfare state; and economic citizenship, employment and social identity.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under POLI 685 may not take this course for credit.

POLI 616 Theories of Foreign Policy (3 credits)

Description:
This course explores the major international and domestic determinants of foreign policy. Principal topics include the influence of the international system, geography, leadership, regime-type, transnationalism and non-governmental organizations on foreign policy. Rather than focusing on any particular country, the course draws upon the experiences of a variety of Western democratic states utilizing case studies of American, British, French and Canadian foreign policy to illustrate and evaluate course themes.

Component(s):
Seminar

POLI 617 Knowledge in International Relations (3 credits)

Description:
This course examines the creation and use of expertise in policy-making, including questions of knowledge construction, the sway of science versus norms on decision-makers, and the impact of bureaucratic processes on the quality of policy. Alternative conceptions of knowledge and its effects on decision-making from political science, sociology, economics, and psychology are applied to issues including national security, environmental politics and economics.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 687 number may not take this course for credit.

POLI 618 Canadian Public Administration (3 credits)

Description:
Discussion is directed towards an understanding of public administration in the Canadian federal setting. Some of the main problems of public administration are related to important changes which have taken place over the last twenty years and which are continuing to take place.

Component(s):
Seminar

POLI 619 International Peacekeeping (3 credits)

Description:
This course is a seminar on the theory and practice of multinational peace and stability operations. The course covers theoretical perspectives on peace operations; the origins and evolution of peace operations, with particular focus on the expansion and transformation of peace operations since the end of the Cold War; the organizational and international politics of peace operations; causes of peace operations' success and failure; problems of managing and coordinating actors involved in peace operations; and prospects for organizational learning and reform. The course examines specific cases of peacekeeping, peacebuilding and peace enforcement.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 687 number may not take this course for credit.

POLI 621 Political Leadership and Decision Making (3 credits)

Description:
This course considers the ways political actors attempt policy and institutional changes through an examination of leadership skills and decision making styles. It considers the philosophical treatments by Plato and Machiavelli and the relationship between morality and leadership by analyzing modern leadership within a constrained constitutional context.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 687 number may not take this course for credit.

POLI 622 Comparative Public Administration (3 credits)

Description:
A comparative study of the public administration systems in various western countries with emphasis on a comparison vis-à-vis the Canadian federal system.

Component(s):
Seminar

POLI 623 Ethics, Morality and Justice (3 credits)

Description:
This course focuses on the essential political concepts of ethics, justice and morality which underlie and motivate almost all political activity. The course explores both ancient and contemporary perspectives on the meaning of these concepts and examines the problems and theoretical challenges that arise when a definitive notion of justice is used to assess or generate public policy.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 685 number may not take this course for credit.

POLI 624 Public Administration of Intergovernmental Affairs (3 credits)

Description:
This course deals with intergovernmental affairs that have become a significant part of the policy process in many countries. An analysis of power relations in the federal state, both in institutional and societal terms, will be a primary focus of this course. The Canadian case will serve as the main area of inquiry.

Component(s):
Seminar

POLI 625 Policy Discourse of Biotechnology (3 credits)

Description:
This course examines the philosophical, political, and theoretical counsel to policymakers and broader public discourse surrounding the development and implementation of new laws and regulations pertaining to issues in advanced biotechnology, such as cloning, stem cell research, and psychopharmacology.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 685 number may not take this course for credit.

POLI 626 Seminar in Comparative Politics (3 credits)

Description:
This course is a survey of the field of comparative politics. It examines major theories, concepts and methods of comparative political analysis.

Component(s):
Lecture; Seminar

Notes:

- Students who have received credit for this topic under a POLI 681 number may not take this course for credit.

POLI 628 Ethics and Values in Public Policy Making (3 credits)

Description:
This course provokes critical thinking on value judgements underlying policy-making and familiarizes students with practical measures available for promoting integrity in public institutions. Students examine the principles underlying ethical standards, various professional codes of ethics, issues such as potential conflicts between personal convictions and public duties, and the ethical responsibility of public officials and civil servants in democratic societies.

Component(s):
Seminar

POLI 629 Critical Perspectives in Development (3 credits)

Description:
This course examines key debates surrounding the concept and the politics of development in the ‘less developed’ world with a particular emphasis on institutional structures, such as the state, the market and non-governmental organizations, through which development has been pursued.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under POLI 687 may not take this course for credit.

POLI 630 0rganization Theory (3 credits)

Description:
This is a seminar in organization theory, an interdisciplinary field concerned with the sources, determinants, functions, and effects of complex organizations. The course focuses on political organizations and the political effects of organizations by reviewing the historical development of organization theory and considering how current debates help us understand the nature and functions of organizations in the twenty-first century. Topics include the nature and sources of formal organizations; organizational structure; organizational decision-making; organizational culture; organizational reliability and failure; and the interaction between organizations and their environments.

Component(s):

Seminar

POLI 631 Political Texts (3 credits)

Description:
The course is an intensive study of a text by a major author such as Plato, Machiavelli, Hobbes, or Nietzsche. Students systematically explore the issues and problems raised by the text and the interpretive traditions that follow from it.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 685 number may not take this course for credit.

POLI 632 Seminar in Political Theory (3 credits)

Description:
This course is a survey of leading research in and approaches to political theory and political philosophy, including the history of political thought, normative political theory and contemporary political thought.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 685 number may not take this course for credit.

POLI 634 Policy Analysis and Program Evaluation (3 credits)

Description:
This course focuses upon methods of assessing consequences of public policies. The main purpose of the course is to allow students to survey evaluation research in political science and to present research designs that will enable them to make plausible assumptions about the outcome of governmental programs in the absence of experimental control.

Component(s):
Seminar

POLI 635 Biotechnology, Agriculture and Food Policy (3 credits)

Description:
The purpose of this course is to explore the ethical and policy dilemmas that rapid scientific and technological advances in biotechnology pose for issues of agriculture and food security. The course focuses on Canadian policy within a comparative perspective and examines alternative policy responses, such as found in the US, EU and developing countries.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 685 number may not take this course for credit.

POLI 636 Theories of Public Policy and Public Administration (3 credits)

Description:
The course explores the diverse intellectual and ideological origins of Public Administration and Public Policy. The focus is on the comparative and critical analysis of the theoretical models under study. Students are encouraged to think analytically and to apply theoretical frameworks to their own empirical enquiries.

Component(s):
Seminar

POLI 637 Democracy and Regime Change (3 credits)

Description:
This seminar examines the various definitions and understandings of democratic and authoritarian regimes and the principal moments of regime change (breakdown, transition, post-transition, and consolidation). It focuses on institution-building, the actors involved in the process of regime change and the political economy of transitions.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under POLI 687 may not take this course for credit.

POLI 638 Seminar in Canadian and Quebec Politics (3 credits)

Description:
This course is a survey of the field at an advanced level. It presents a discussion of contemporary issues and controversies in Canadian and Quebec Politics.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 683 number may not take this course for credit.

POLI 643 Rational and Public Choice (3 credits)

Description:
This course deals with understanding the micro-analytical foundations of individual and group behaviour in political life. It introduces students to the main concepts, theorems and their applications in positive analytical politics including game theory, spatial modeling and institutional analysis.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under POLI 687 may not take this course for credit.

POLI 644 Research Methods (3 credits)

Description:
This course introduces students to the logic and methodology of Political Science research and public policy analysis.

Component(s):
Seminar

POLI 645 Indigenous Peoples and the State (3 credits)

Description:
This course examines the political and administrative context in which Indigenous Peoples and the state coexist as well as the tensions between European and Indigenous modes of governance. It focuses on the evolution of institutions and policies regulating this relationship, and the governance strategies developed consistent with Indigenous traditions. The Canadian case serves as the focus but other countries may be considered.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under POLI 683 may not take this course for credit.

POLI 646 History of Thought in Political Economy (3 credits)

Description:
This course presents a survey of the major ideas which have shaped the various approaches to political economy from the classical theorists to twentieth century thinkers. The historical and contemporary influence of these ideas on public policy is evaluated.

Component(s):
Seminar

POLI 647 International Human Security (3 credits)

Description:
An introduction to the growing literature and controversies surrounding the concept of ‘human security’ in international politics, applied specifically to the Canadian foreign policy context. Examined actors include states, non-governmental organizations, international institutions, and ‘civil society’.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under POLI 687 may not take this course for credit.

POLI 648 Feminist Critiques of Public Policy (3 credits)

Description:
This course provides an in-depth examination of feminist and critical perspectives of public policy and administration. The course seeks to examine the ways in which social location is implicated in (and mediated by) public policy theory and practice. Specific topics may include the state of bureaucracy, state-society relations, public policy discourses, structures, processes and outcomes, and

substantive issue areas, such as body politics, social and economic policy, and the labour market.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 683 number may not take this course for credit.

POLI 649 Gender and Global Politics (3 credits)

Description:
This seminar focuses on the intersection of the global and the local through different methodological and theoretical approaches to the study of gender. Drawing from texts from the fields of comparative politics, international relations and sociology, the course exposes class participants to different scholarly treatments of gender and politics especially as these treatments have evolved in a post-Cold War era of increasing globalization.

Component(s):
Seminar

POLI 652 Science, Technology and Power (3 credits)

Description:
This course introduces students to the growing field of science policy analysis. It provides an overview of the theoretical approaches and analytical tools used in the area and critically discusses various policy mechanisms now in place as well as current and emerging issues.

Component(s):
Seminar

POLI 654 Concepts of the State (3 credits)

Description:
This course examines several of the most significant attempts made by modern political thinkers to answer the question, “What is the modern state?” It addresses both the historical emergence of the modern state and the various ways that this emergence has been theorized. Special emphasis is placed on the differences and interconnections between historical, theoretical, and practical questions.

Component(s):
Seminar

POLI 657 Nationalism and Ethnicity (3 credits)

Description:
This seminar discusses the nature, dynamics and consequences of nationalism. The emphasis is placed on presenting and discussing various theoretical understandings of identity and nationalist mobilization. It examines conceptual issues relating to the study of nationalism, namely the nature, origins and characterizations of nations and nationalism and the strategies for regulation of nationalist conflict.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under POLI 687 may not take this course for credit.

POLI 658 Authors of the Political Imagination (3 credits)

Description:
This course examines a broad range of literary and non-literary genres for their potential to inform and redirect the political imagination. The seminar adopts a broadly comparative perspective on literature, culture, politics and individual motivation.

Component(s):
Seminar

POLI 659 International Organizations (3 credits)

Description:
This course explores the role of international organizations, institutions and regimes in world politics. The course covers intergovernmental and non-governmental organizations as well as informal institutional arrangements. It surveys theoretical debates regarding the origins, dynamics, and significance of international organizations, and examines their role in areas such as international security, international political economy, and regional integration. The course also considers debates over democratic accountability within international organizations and the efficacy of global governance.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a POLI 687 number may not take this course for credit.

POLI 662 International Political Economy (3 credits)

Description:
This course covers theories from macroeconomics and international relations and their application to major historical and

contemporary events in the evolution of the global political economy. Topics include international trade and finance, economic development, regional integration and globalization, North-South relations, the emergence of multinational corporations, and international organizations such as the World Bank, IMF, WTO, OECD, and UNCTAD.

Component(s):
Seminar

POLI 681 Special Topics in Comparative Politics (3 credits)

Component(s):
Seminar

POLI 683 Special Topics in Public Policy and Administration (3 credits)

Component(s):
Seminar

POLI 684 Special Topics in Canadian and Quebec Politics (3 credits)

Component(s):
Seminar

POLI 685 Special Topics in Political Theory (3 credits)

Component(s):
Seminar

POLI 686 Internship Preparation (3 credits)

Description:
Students attend departmental workshops to prepare and apply for internships in the public and private sector. These workshops may include CV and letter writing, interviewing, teamwork, soft skills, communications, and fundamentals of the public service organization in Canada.

Component(s):
Workshop

Notes:

- This course is graded on a pass/fail basis.

POLI 687 Special Topics in International Politics (3 credits)

Component(s):
Seminar

POLI 688 Internship (9 credits)

Prerequisite/Corequisite:
The following course must be completed previously: POLI 686 . If prerequisites are not satisfied, permission of the department is required.

Description:
The internship is a four-month full-time job placement in either the public or private sector arranged and approved by the Political Science Internship Coordinator and MPPPA Director.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.

POLI 689 Internship Report (9 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: POLI 686 , POLI 688 . If prerequisites are not satisfied, permission of the department is required.

Description:
Under the direction of a faculty supervisor, the student prepares an original report that applies a theoretical framework to their internship experience and includes policy recommendations that contribute to the policy process in Canada or abroad.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

POLI 691 Extended Research Essay (12 credits)

Description:
The Extended Research Essay is a directed study supervised by a faculty member with whom a student completed a course in their area of concentration. Requiring additional research, this degree requirement builds on a term paper submitted at the graduate level in a concentration course and is considered to be a significant revision and extension of that paper, with an extensive bibliography.

Component(s):
Independent Study

POLI 694 Thesis Proposal (3 credits)

Description:
This course is a directed study involving a comprehensive understanding of the literature in the area of research directly relevant to the thesis topic under the direction of a faculty supervisor. The written assignments involve a comprehensive literature review, annotated bibliography and research design that culminate in a thesis proposal presented in an oral defence before the thesis supervisor and two faculty members in the graduate program.

Component(s):
Thesis Research

POLI 695 Directed Studies (3 credits)

Description:
Independent study in the area of concentration.

Component(s):
Tutorial

POLI 696 Master's Thesis (24 credits)

Description:
Students are required to demonstrate their ability to carry out original, independent research. The thesis, which is researched and written under the direction of a supervisor and thesis committee, is defended before the student's thesis committee.

Component(s):
Thesis Research

Political Science PhD Courses

The Department offers graduate courses in the following five core fields:

Comparative Politics

International Politics
Canadian and Québec Politics
Political Theory
Public Policy and Administration

Core Courses

POLI 801 Advanced Seminar in Comparative Politics (3 credits)

Description:
This course is a survey of the field of comparative politics at an advanced level. It examines major theories, concepts and methods of comparative political analysis.

Component(s):
Seminar

POLI 802 Advanced Seminar in International Politics (3 credits)

Description:
This course is a survey of core concepts of international politics at an advanced level. It examines major theoretical perspectives and their application to historical and contemporary international issues.

Component(s):
Seminar

POLI 803 Advanced Seminar in Canadian and Québec Politics (3 credits)

Description:
This course is a survey of the field at an advanced level. It presents a discussion of contemporary issues and controversies in Canadian and Québec politics.

Component(s):
Seminar

POLI 804 Advanced Seminar in Political Theory (3 credits)

Description:
This course is a survey of leading research in political theory and political philosophy, including the history of political thought, normative political theory and contemporary political thought.

Component(s):
Seminar

POLI 805 Advanced Seminar in Public Policy and Public Administration (3 credits)

Description:
This course surveys several theoretical models and paradigms of public policy and public administration. It examines critically the intellectual and ideological traditions of policy analysis.

Component(s):
Seminar

POLI 844 Research Design (3 credits)

Description:
This course explores differing research philosophies, the principles of research design and research strategies. It also considers philosophical critiques of different approaches and practical aspects of conducting research.

Component(s):
Seminar

Elective Courses

POLI 811 Special Topics in Comparative Politics (3 credits)

Description:
Topics vary from year to year.

Component(s):
Seminar

POLI 812 Special Topics in International Politics (3 credits)

Description:
Topics vary from year to year.

Component(s):
Seminar

POLI 813 Special Topics in Canadian and Québec Politics (3 credits)

Description:
Topics vary from year to year.

Component(s):
Seminar

POLI 814 Special Topics in Political Theory (3 credits)

Description:
Topics vary from year to year.

Component(s):
Seminar

POLI 815 Special Topics in Public Policy and Public Administration (3 credits)

Description:
Topics vary from year to year.

Component(s):
Seminar

POLI 898 Directed Studies (3 credits)

Prerequisite/Corequisite:
Permission of the PhD Committee is required.

Description:
This special reading course is designed to explore topics and themes relevant to a student's doctoral research.

Component(s):
Tutorial

Comprehensive Examination Courses

POLI 885 Comprehensive Exam (6 credits)

Description:

All candidates are required to write two 6-credit comprehensive exams in their two areas of specialization, so that they are deemed competent to teach at the university level in these two areas. For each area of specialization there will be a written exam and an oral defence of the exam within three weeks of writing the former. Students must pass the written exam to move forward to the oral exam, but can still fail an exam with an incompetent oral performance. If either part (written or oral) is failed, the student will be permitted one re-take of the entire exam both oral and written. If the student then fails either the written or oral part, the second failure will result in the student being withdrawn from the program.

Component(s):

Thesis Research

POLI 886 Comprehensive Exam (6 credits)

Description:

All candidates are required to write two 6-credit comprehensive exams in their two areas of specialization, so that they are deemed competent to teach at the university level in these two areas. For each area of specialization there will be a written exam and an oral defence of the exam within three weeks of writing the former. Students must pass the written exam to move forward to the oral exam, but can still fail an exam with an incompetent oral performance. If either part (written or oral) is failed, the student will be permitted one re-take of the entire exam both oral and written. If the student then fails either the written or oral part, the second failure will result in the student being withdrawn from the program.

Component(s):

Thesis Research

Thesis Courses

POLI 889 Thesis Proposal (3 credits)

Description:

After completion of the course work and comprehensive exams, the candidate with the concurrence and assistance of the Graduate Program Director finalizes the supervisory committee, consisting of the principal supervisor(s) and at least two other members of the department. Students are required to complete and defend their thesis proposal before the supervisory committee in a meeting chaired by the Graduate Program Director. The thesis proposal will include a literature review and a fully justified research agenda. In cases where the supervisory committee is not satisfied with the proposal, the student can resubmit and re-defend. A second unsatisfactory proposal would result in the student being withdrawn from the program.

Component(s):

Thesis Research

POLI 890 Thesis (54 credits)

Description:

Doctoral students must submit a thesis based on their research and defend it in an oral examination. A doctoral thesis should be based on extensive research in primary sources, make an original contribution to knowledge, and be presented in acceptable scholarly form.

Component(s):

Thesis Research

Psychology Courses

PSYC 601 Statistical Analysis and Experimental Design (3 credits)

Description:
A detailed consideration of selected issues in Psychological statistics. Topics include parametric and non-parametric techniques, analysis of variance, power of statistical tests, and hypothesis testing.

Component(s):
Lecture; Laboratory

PSYC 644 Clinical and Health Research Area Seminar I (3 credits)

Description:
A seminar in which current research of faculty and students in clinical and health psychology is presented and discussed.

Component(s):
Seminar

PSYC 6440 Clinical and Health Research Area Seminar I (0 credits)

Description:
A seminar in which current research of faculty and students in clinical and health psychology is presented and discussed.

Component(s):
Seminar

PSYC 645 Cognitive Science Area Seminar I (3 credits)

Description:
A seminar in which current research of faculty and students in cognitive science is presented and discussed.

Component(s):
Seminar

PSYC 6450 Cognitive Science Area Seminar I (0 credits)

Description:

A seminar in which current research of faculty and students in cognitive science is presented and discussed.

Component(s):
Seminar

PSYC 646 Human Development Area Seminar I (3 credits)

Description:
A seminar in which current research of faculty and students in human development and developmental processes is presented and discussed.

Component(s):
Seminar

PSYC 6460 Human Development Area Seminar I (0 credits)

Description:
A seminar in which current research of faculty and students in human development and developmental processes is presented and discussed.

Component(s):
Seminar

PSYC 647 Behavioural Neuroscience Area Seminar I (3 credits)

Description:
A seminar in which current research of faculty and students in behavioural neuroscience is presented and discussed.

Component(s):
Seminar

PSYC 6470 Behavioural Neuroscience Area Seminar I (0 credits)

Description:
A seminar in which current research of faculty and students in behavioural neuroscience is presented and discussed.

Component(s):
Seminar

PSYC 690 Research and Thesis (30 credits)

Description:
The student must submit a thesis on a topic relating to one or more of the areas of research specialization of the department (Behavioural Neuroscience, Clinical and Health Research, Human Development and Developmental Processes, and Cognitive Science) chosen in consultation with his or her thesis supervisor. Topics must be approved by a committee of the department. The thesis shall be read and graded by the student's thesis director and by at least two other scholars, one of whom may be an outside examiner.

Component(s):
Thesis Research

PSYC 700 Personality and Psychopathology (3 credits)

Prerequisite/Corequisite:
Students must have completed an undergraduate course in psychopathy or equivalent prior to enrolling.

Description:
This seminar deals with historical and current approaches to the study of psychopathology, including critical evaluation of empirical findings in selected areas. Contemporary models of personality and their links with normal and maladaptive functioning are also reviewed. Classification systems, including the current revision of the APA Diagnostic and Statistical Manual, are critically evaluated.

Component(s):
Lecture

PSYC 701 Psychometrics, Intelligence, and Neurocognitive Evaluation (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: PSYC 700; The following course must be completed concurrently: PSYC 706. If prerequisites are not satisfied, permission of the Director of Clinical Training is required.

Description:
This course provides a foundation in evidence-based assessment, with an emphasis on psychometrics, intellectual and neurocognitive testing, and appropriate test use. Students develop functional competencies to critically evaluate, judiciously select, intelligently use, and insightfully interpret existing assessment measures. Topics may include psychometrics and measurement theory, technical and methodological principles of testing, norms and standardization, sources of measurement error, test development, and test evaluation. Students learn about special assessment issues, including cultural, socioeconomic, ethical, and legal issues related to standardized measures of intellectual and neurocognitive abilities, test bias/fairness, and best practices in testing persons from diverse backgrounds.

Component(s):
Lecture

Notes:

- A practicum in assessment techniques (PSYC 706) is typically taken in conjunction with this course.

PSYC 703 Cognitive and Behavioural Interventions (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: PSYC 700.

Description:
This course highlights evidence-based psychological treatments with a focus on cognitive and behavioural therapies. Topics may include the history of cognitive and behavioural approaches, the theory and research underpinning these approaches, and intervention strategies and techniques for mental health problems, especially mood and anxiety disorders. The course includes discussions of using these approaches across the lifespan, and may employ case examples to illustrate how different problems may benefit from different psychological and psychopharmacological treatment approaches.

Component(s):
Seminar

PSYC 704 Group and Systemic Interventions (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: PSYC 703.

Description:
This course examines psychotherapeutic principles, approaches, and empirical evidence in the context of multi-individual therapy and interventions (e.g., couple, family, group, organization, community, or cultural context). Critical evaluation of empirical findings in selected areas is also reviewed. Practice guidelines, scope of practice and standards of the Ordre des Psychologues du Québec (OPQ) and the Canadian Psychological Association (CPA), where relevant, are studied and discussed in relation to each topic, as appropriate.

Component(s):
Seminar

PSYC 705 Internal Practicum I (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: PSYC 7201.

Description:
Students participate in case supervision, observe and/or assist with clients in therapy, and attend case conferences at the training clinic in the Department of Psychology.

Component(s):
Seminar

PSYC 706 Diagnostic Evaluation Practicum (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously or concurrently: PSYC 700

Description:
This practicum focuses on the development of interpersonal competencies and interviewing skills and on the utilization of standardized tools to assess personality and psychopathology. Techniques for administration, interpretation and report-writing of specific test batteries suitable for adults and children/adolescents are emphasized.

Component(s):
Seminar; Laboratory

PSYC 707 Cognitive Evaluation Practicum (3 credits)

Prerequisite/Corequisite:
The following course must be completed concurrently: PSYC 701.

Description:
This practicum focuses on the development of interpersonal competencies and evaluation skills and on the utilization of standardized tools to assess intellectual and cognitive functioning. Techniques for administration, interpretation and report writing of specific test batteries suitable for adults and children/adolescents are emphasized.

Component(s):
Seminar; Laboratory

PSYC 708 Internal Practicum II: General (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: PSYC 705. The following course must be completed concurrently: PSYC 7202.

Description:
Students are responsible for the assessment and treatment of selected adult, child and/or adolescent clients of the training clinic in the Department of Psychology under faculty member supervision.

Component(s):
Practicum/Internship/Work Term

PSYC 709 Internal Practicum II: Adult (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously PSYC 705. The following courses must be completed previously or concurrently: PSYC 7202.

Description:
Students are responsible for the assessment and treatment of selected adult clients of the training clinic in the Department of Psychology under faculty member supervision.

Component(s):
Practicum/Internship/Work Term

PSYC 710 Internal Practicum II: Child and Adolescent (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously PSYC 705. The following courses must be completed previously or concurrently: PSYC 7202.

Description:
Students are responsible for the assessment and treatment of selected child and/or adolescent clients of the training clinic in the Department of Psychology under faculty member supervision.

Component(s):
Practicum/Internship/Work Term

PSYC 711 External Practicum I: General (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 704; PSYC 706; PSYC 707; PSYC 7202. Permission of the Director of Practica is required.

Description:
This course is an introductory external practicum with adult, child, and/or adolescent clients in an applied setting approved by the Director of Practica (e.g., hospitals, clinics, schools, community and rehabilitation centres) and conducted under the supervision of licensed psychologists.

Component(s):
Seminar

PSYC 712 External Practicum I: Adult (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 704; PSYC 706; PSYC 707; PSYC 7202. Permission of the Director of Practica is required.

Description:
This course is an introductory external practicum with adult clients in an applied setting approved by the Director of Practica (e.g., hospitals, clinics, schools, community and rehabilitation centres) and conducted under the supervision of licensed psychologists.

Component(s):
Seminar

PSYC 713 External Practicum I: Child and Adolescent (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 704; PSYC 706; PSYC 707; PSYC 7202. Permission of the Director of Practica is required.

Description:
This course is an introductory external practicum with child and/or adolescent clients in an applied setting approved by the Director of Practica (e.g., hospitals, clinics, schools, community and rehabilitation centres) and conducted under the supervision of licensed psychologists.

Component(s):
Seminar

PSYC 714 Central Topics in Psychology (6 credits)

Description:
This general seminar deals with basic theoretical and research issues in Psychology. Topics are drawn from a wide range of areas in Psychology including perceptual and cognitive processes, learning, motivation, and psycho-pathology. Issues are considered with respect to developmental, physiological and social approaches. Students who have received credit for PSYC 602 may not take this course for credit.

Component(s):
Lecture

PSYC 716 Advanced Human Development (3 credits)

Description:
This seminar on theory and research focuses on human development and developmental processes. Subject matter will vary from term to term and from year to year. Students may re-register for this course, provided that the course content has changed. Change in content will be indicated by the letter following the course number.

Component(s):
Lecture

PSYC 7201 Introduction to Ethics for Clinical Psychology (1 credits)

Description:
In this course, the main aspects of the Ordre des Psychologues du Québec (OPQ) Code of Ethics, and fundamental ethical standards for the practice of psychology are reviewed. Topics may include privacy and confidentiality, informed consent, record keeping, working with children/adolescents and other vulnerable populations, and handling emergency situations (e.g., suicidality, homicidality). Ethical considerations for clinical research are also discussed.

Component(s):
Seminar

PSYC 7202 Seminar on Ethical and Professional Issues (2 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 7201.

Description:
In this seminar, ethical and professional issues in clinical psychology are considered via the discussion of case presentations, ethical dilemmas, and relevant jurisprudence. The Codes of Ethics of the Ordre des Psychologues du Québec (OPQ), and of the Canadian Psychological Association (CPA) serve as the framework for resolving ethical dilemmas associated with topics related to dual relationships, duty to protect/duty to warn, professional competence, diversity, labelling and stigma, and special issues related to consultation, third party payers, and other professionals.

Component(s):
Seminar

PSYC 721 Special Topics Seminar (3 credits)

Description:
This seminar provides an advanced treatment of specialized research literature in an integrative or selected area of psychology outside the department's major areas of specialization. It may be offered as a seminar, tutorial or directed reading course, or in any other format, subject to approval of the program director. Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

Component(s):
Lecture; Seminar

PSYC 722 Focused Topic Seminar (1.5 credits)

Description:
This seminar provides an advanced treatment of specialized research literature in a selected area of psychology. It may be offered as a seminar, tutorial or directed reading course, or in any other format, subject to approval of the program director. Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

PSYC 724 Special Topics in Clinical and Health Psychology (3 credits)

Description:
This course provides an advanced treatment of specialized research literature in an area of clinical and/or health psychology. It may be offered as a seminar, tutorial or directed reading course, or in any other format, subject to approval of the program director. Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

Component(s):
Lecture; Seminar

PSYC 725 Special Topics in Cognitive Science (3 credits)

Description:
This course provides an advanced treatment of specialized research literature in an area of cognitive science. It may be offered as a seminar, tutorial or directed reading course, or in any other format, subject to approval of the program director. Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

Component(s):
Lecture; Seminar

PSYC 726 Special Topics in Human Development (3 credits)

Description:
This course provides an advanced treatment of specialized research literature in an area of human development and developmental processes. It may be offered as a seminar, tutorial or directed reading course, or in any other format, subject to approval of the program director. Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

Component(s):
Lecture; Seminar

PSYC 727 Special Topics in Behavioural Neuroscience (3 credits)

Description:
This course provides an advanced treatment of specialized research literature in an area of behavioural neuroscience. It may be offered as a seminar, tutorial or directed reading course, or in any other format, subject to approval of the program director. Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

Component(s):
Lecture; Seminar

PSYC 734 Multivariate Statistics (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: PSYC 601.

Description:
Building upon material presented in PSYC 601, this course covers latent variable analyses and multivariate procedures, including factor analysis, structural equation modelling, multiple group models, and multilevel modelling.

Component(s):
Lecture; Laboratory

PSYC 799 Progress in Clinical Diploma (0 credits)

Description:
This course, normally taken annually during the graduate clinical diploma, ensures that students meet the standard of competency in interpersonal relations (as stipulated by the Ordre des Psychologues du Québec (OPQ)). Over the course of the year, students have the opportunity to showcase their professionalism, responsiveness to supervision, independence, critical evaluation of course and practical material, and to demonstrate the skills expected of someone planning to be a clinical psychologist. Evaluation takes place at the annual review of clinical students.

Component(s):
Seminar

PSYC 801 Research Seminar I (3 credits)

Description:
A seminar attended by all doctoral students in which specific research proposals and related theoretical issues and methodological problems are presented for discussion by students and participating faculty.

Component(s):
Seminar

PSYC 802 Research Seminar II (3 credits)

Description:
A continuation of PSYC 801.

Component(s):
Lecture; Seminar

PSYC 8103 Advanced Adult Psychopathology (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 700.

Description:
This course provides an advanced analysis of issues in the assessment and treatment of psychological disorders across the full range of adulthood. Specific topics differ from year to year.

Component(s):
Seminar

PSYC 8104 Advanced Child and Adolescent Psychopathology (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 700.

Description:
The aim of this course is to highlight recent scientific advances in child/ adolescent mental health and the identification, etiology, prevention, and treatment of mental disorders in childhood and adolescence. This course focuses on the origins and developmental course of childhood psychopathology, with special attention to putative causal processes, risk and protective factors. Practice guidelines, scope of practice and standards of the Ordre des Psychologues du Québec (OPQ) and of the Canadian Psychological Association (CPA), where relevant, are studied and discussed in relation to each topic.

Component(s):
Seminar

PSYC 8203 Advanced Adult Intervention (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 703.

Description:

This course provides an in-depth investigation of one or more advanced themes relevant to psychological interventions with adults. Theory, empirical considerations, and clinical applications are discussed. The relation of topics to practice guidelines, scope of practice, and standards of the Ordre des Psychologues du Québec (OPQ), and of the Canadian Psychological Association (CPA) are included, where relevant. Specific topics differ from year to year.

Component(s):
Seminar

PSYC 8204 Advanced Child and Adolescent Intervention (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 703.

Description:
This course provides an in-depth investigation of one or more advanced themes relevant to psychological interventions with children and adolescents. Theory, empirical considerations, and clinical applications are discussed. The relation of topics to practice guidelines, scope of practice, and standards of the Ordre des Psychologues du Québec (OPQ), and of the Canadian Psychological Association (CPA) are included where relevant. Specific topics differ from year to year.

Component(s):
Seminar

PSYC 823 Internal Practicum III: General (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 708 or PSYC 709 or PSYC 710.

Description:
Advanced students are expected to begin to define clinical interests and treatment methods consistent with their career goals. They receive the appropriate clinical experience and supervision in this practicum (e.g., working with children, adolescents, adults, working with clients who present particular types of problems).

Component(s):
Practicum/Internship/Work Term

PSYC 824 Internal Practicum III: Adult (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 708 or PSYC 709 or PSYC 710.

Description:
Advanced students are expected to begin to define clinical interests and treatment methods consistent with their career goals. They receive the appropriate clinical experience and supervision in this practicum working with adult clients, e.g., working with a particular orientation and/or with particular types of problems.

Component(s):
Practicum/Internship/Work Term

PSYC 825 Internal Practicum III: Child and Adolescent (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 708 or PSYC 709 or PSYC 710.

Description:
Advanced students are expected to begin to define clinical interests and treatment methods consistent with their career goals. They receive the appropriate clinical experience and supervision in this practicum working with child and/or adolescent clients and families, e.g., working with a particular orientation and/or with particular types of problems.

Component(s):
Practicum/Internship/Work Term

PSYC 826 Internal Practicum IV: General (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: PSYC 823 or PSYC 824 or PSYC 825. Permission of the Director of Clinical Training is required.

Description:
This course is a specialized practicum for advanced students involving clinical experience with adult, child, and/or adolescent clients under supervision of a licensed psychologist.

Component(s):
Practicum/Internship/Work Term

PSYC 827 Internal Practicum IV: Adult (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: PSYC 823 or PSYC 824 or PSYC 825. Permission of the Director of Clinical Training is required.

Description:
This course is a specialized practicum for advanced students involving clinical experience with adult clients under supervision of a licensed psychologist.

Component(s):
Practicum/Internship/Work Term

PSYC 828 Internal Practicum IV: Child and Adolescent (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: PSYC 823 or PSYC 824 or PSYC 825. Permission of the Director of Clinical Training is required.

Description:
This course is a specialized practicum for advanced students involving clinical experience with child and/or adolescent clients under supervision of a licensed psycholgist.

Component(s):
Practicum/Internship/Work Term

PSYC 834 Science in Practice: Applied Research, Consultation, and Supervision (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 708 or PSYC 709 or PSYC 710. The following courses must be completed concurrently: PSYC 711 or PSYC 712 or PSYC 713.

Description:
This seminar provides an advanced treatment of issues in current psychological theory and research that are relevant to clinical practice, e.g., causal models and their assumptions, legal and ethical issues, classification by state, trait, and situational context; brain-behaviour relations; mental health consultation; models of clinical supervision; competency-based supervision; and ethics and best practice in clinical supervision. The aims are to foster in students a) how to regularly review of clinically relevant literature; b) a critical perspective regarding current clinical practice and supervision practices; c) practical knowledge of the guidelines and criteria for optimal assessment and treatment decisions tailored to the needs of clients; and d) an understanding of the expansive consultation roles of clinical psychologists taking place within the context of multidisciplinary health care and systems of care.

Component(s):
Seminar

PSYC 838 External Practicum II: General (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 711 or PSYC 712 or PSYC 713. Permission of the Director of Practica is required.

Description:
This course is a senior external practicum with adult, child, and/or adolescent clients in an applied setting (e.g., hospitals, clinics, schools, community and rehabilitation centres), conducted under the supervision of licensed psychologists.

Component(s):
Seminar; Practicum/Internship/Work Term

PSYC 839 External Practicum II: Adult (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 711 or PSYC 712 or PSYC 713 Permission of the Director of Practica is required. .

Description:
This course is a senior external practicum with adult clients in an applied setting (e.g., hospitals, clinics, schools, community and rehabilitation centres), conducted under the supervision of licensed psychologists.

Component(s):
Lecture; Practicum/Internship/Work Term

PSYC 840 External Practicum II: Child and Adolescent (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 711 or PSYC 712 or PSYC 713. Permission of the Director of Practica is required.

Description:
This course is a senior external practicum with child and/or adolescent clients in an applied setting (e.g., hospitals, clinics, schools, community and rehabilitation centres), conducted under the supervision of licensed psychologists.

Component(s):
Seminar; Practicum/Internship/Work Term

PSYC 841 External Practicum III: General (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 838 or PSYC 839 or PSYC 840. Permission of the Director of Practica is required.

Description:
This course is a senior external practicum with adult, child, and/or adolescent clients in an applied setting (e.g., hospitals, clinics, schools, community and rehabilitation centres), conducted under the supervision of licensed psychologists.

Component(s):
Practicum/Internship/Work Term

PSYC 842 External Practicum III: Adult (3 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: PSYC 838 or PSYC 839 or PSYC 840. Permission of the Director of Practica is required.

Description:
This course is a senior external practicum with adult clients in an applied setting (e.g., hospitals, clinics, schools, community and rehabilitation centres), conducted under the supervision of licensed psychologists.

Component(s):
Practicum/Internship/Work Term

PSYC 843 External Practicum III: Child and Adolescent (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 838 or PSYC 839 or PSYC 840. Permission of the Director of Practica is required.

Description:
This course is a senior external practicum with child and/or adolescent clients in an applied setting (e.g., hospitals, clinics, schools, community and rehabilitation centres), conducted under the supervision of licensed psychologists.

Component(s):
Practicum/Internship/Work Term

PSYC 844 Clinical and Health Research Area Seminar II (3 credits)

Description:
This seminar provides the opportunity for faculty and students working in clinical and health psychology to present and discuss their current research.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course up to 4 times provided that the course content has changed.

PSYC 845 Cognitive Science Area Seminar II (3 credits)

Description:
This seminar provides the opportunity for faculty and students working in cognitive science to present and discuss their current research.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course up to 4 times provided that the course content has changed.

PSYC 846 Human Development Area Seminar II (3 credits)

Description:
This seminar provides the opportunity for faculty and students working on human development and developmental processes to present and discuss their current research.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course up to 4 times provided that the course content has changed. Changes in content are indicated by the letter following the course number, e.g. PSYC 846A, PSYC 846B.

PSYC 847 Behavioural Neuroscience Area Seminar II (3 credits)

Description:
This seminar provides the opportunity for faculty and students working in behavioural neuroscience to present and discuss their current research.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course up to 4 times provided that the course content has changed.

PSYC 8503 Practicum in Research Techniques (3 credits)

Description:
This practicum is designed to give students the opportunity to develop their research skills by such activities as learning new experimental and technical approaches, developing instruments or computer programs to support research, developing expertise in advanced statistical methods, or other equivalent activities.

Component(s):
Practicum/Internship/Work Term

PSYC 8506 Practicum in Research Techniques (6 credits)

Description:
This practicum is designed to give students the opportunity to develop their research skills by such activities as learning new experimental and technical approaches, developing instruments or computer programs to support research, developing expertise in advanced statistical methods, or other equivalent activities.

Component(s):
Practicum/Internship/Work Term

PSYC 851 Teaching of Research Techniques (3 credits)

Prerequisite/Corequisite:
Permission of PhD Program Director is required.

Description:
This practicum is designed to train students in the teaching of research techniques. Under supervision, the student is responsible for training an apprentice in specialized experimental skills or research techniques that may include advanced statistical methods, or other equivalent activities. Prior to beginning the work, students submit a detailed outline of the planned teaching activities to be approved by the program director.

Component(s):
Lecture

PSYC 880 PhD Comprehensive Examination (0 credits)

Description:
Students are required to write a comprehensive examination within 12 months of being admitted for the degree. The examination is in two parts, one dealing with general issues and the other with the candidate's area of specialization.

Component(s):
Lecture

PSYC 885 Predoctoral Clinical Internship (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: PSYC 838 or PSYC 839 or PSYC 840. Permission of the Director of Clinical Training is required.

Description:
The pre-doctoral internship consists of the equivalent of 12 months full-time employment (2000 hours) under qualified supervision in an applied setting approved by the Director of Clinical Training. The internship is usually done after completion of course requirements, and after data collection and analysis, and a draft of the doctoral thesis have been completed.

Component(s):
Practicum/Internship/Work Term

PSYC 890 Research and Thesis (60 credits)

Description:
The research is undertaken within one or more of the areas of research specialization of the department (Behavioural Neuroscience, Clinical and Health Research, Human Development and Developmental Processes, and Cognitive Science) under the supervision of a faculty member. The thesis is expected to make a significant contribution to the advancement of knowledge. The content and form of the thesis must be approved by a departmental committee prior to submission to the School of Graduate Studies.

Component(s):
Thesis Research

PSYC 899 Progress in Clinical Doctorate (0 credits)

Description:
This course, taken annually during the graduate clinical doctorate, ensures that students meet the domain of competency in interpersonal relations (as stipulated by the Ordre des Psychologues du Québec), as well as providing an opportunity for students to showcase their professionalism, responsiveness to supervision, independence, critical evaluation of course and practical material, and to demonstrate the skills expected of someone planning to be a clinical psychologist. Evaluations take place at the annual review of clinical students.

Component(s):
Seminar

Religions and Cultures Courses

Religions and Cultures MA and Judaic Studies MA Courses

Required Courses (Judaic Studies MA)

RELI 6041 Guided Research Paper (Judaic Studies) (24 credits)

Description:
The guided research paper (GRP) is 11,000-12,500 words (about 40-50 pages) in length, exclusive of footnotes and bibliography. The GRP is usually undertaken in a student's third or fourth semester (after the completion of coursework). The research paper develops themes or subjects that the student engaged during coursework. Students in the MA in Judaic Studies write on an aspect of Jewish history or culture.

Component(s):
Research

RELI 6042 Research Preparation I (Judaic Studies) (3 credits)

Description:
In this initial phase of the research preparation, students, under the guidance of their supervisor, develop and submit a statement describing the scope and content of their intended research.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

RELI 6043 Research Preparation II (Judaic Studies) (3 credits)

Description:
This course continues to prepare students for the Guided Research Paper (GRP). Students develop and submit an annotated bibliography to the supervisor.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

RELI 6044 Guided Research Paper Proposal (Judaic Studies) (3 credits)

Description:
The proposal for the Guided Research Paper (GRP), prepared under the guidance of the supervisor, outlines the nature of the student's paper, contains a bibliography, and specifies the timeframe for completing the paper.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

RELI 6045 Guided Research Paper I (Judaic Studies) (9 credits)

Description:
This is the first major step in completing the Guided Research Paper (GRP). Students submit an initial draft to the supervisor. The precise nature of this first draft is determined by the supervisor.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

RELI 6046 Guided Research Paper II (Judaic Studies) (9 credits)

Description:
The Guided Research Paper (GRP) is the capstone project in which students apply the themes, methods, approaches, and material with which they have engaged during their coursework and in preparation for their project. It presents original research and is typically

10,000 - 14,000 words in length. For further specific information concerning the GRP, students should consult the departmental guidelines.

Component(s):
Research

RELI 6050 Thesis Proposal (Judaic Studies) (3 credits)

Description:
Students must submit a thesis proposal on a topic chosen in consultation with the thesis supervisor and the proposal must be approved by the Department's Graduate Studies committee. The proposal for the thesis is 2,500-3,000 words in length. A thesis proposal outlines the student's proposed research paper, locates their research in relation to existing scholarship, clarifies their methodology and research questions, and includes a bibliography of at least ten academic sources, and any primary materials (such as editions of critical texts), which the students use.

Component(s):
Thesis Research

RELI 6052 Thesis (Judaic Studies) (30 credits)

Description:
Students in the MA in Judaic Studies write on an aspect of Jewish history or culture. The thesis is a work of primary research that normally runs to 18,000-24,000 words, exclusive of footnotes and bibliography. Students are expected to have the requisite language skills to undertake their proposed research, for instance in Yiddish or Hebrew.

Component(s):
Thesis Research

Notes:

- This course is graded on a pass/fail basis.

Required Courses (Religions and Cultures MA)

RELI 6021 Guided Research Paper (Religions and Cultures) (24 credits)

Description:
The guided research paper (GRP) is 11,000-12,500 words (about 40-50 pages) in length, exclusive of footnotes and bibliography. The GRP is usually undertaken in a student's third or fourth semester (after the completion of coursework). This research paper develops themes or subjects that the student engaged during coursework.

Component(s):

Research

RELI 6022 Research Preparation I (Religions and Cultures) (3 credits)

Description:
In this initial phase of the research preparation, students, under the guidance of their supervisor, develop and submit a statement describing the scope and content of their intended research.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

RELI 6023 Research Preparation II (Religions and Cultures) (3 credits)

Description:
This course continues to prepare students for the Guided Research Paper (GRP). Students develop and submit an annotated bibliography to the supervisor.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

RELI 6024 Guided Research Paper Proposal (Religions and Cultures) (3 credits)

Description:
The proposal for the Guided Research Paper (GRP), prepared under the guidance of the supervisor, outlines the nature of the student's paper, contains a bibliography, and specifies the timeframe in which students complete the paper.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

RELI 6025 Guided Research Paper I (9 credits)

Description:
This is the first major step in completing the Guided Research Paper (GRP). Students submit an initial draft to the supervisor. The precise nature of this first draft is determined by the supervisor.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

RELI 6026 Guided Research Paper II (Religions and Cultures) (9 credits)

Description:
The Guided Research Paper (GRP) is the capstone project in which students apply the themes, methods, approaches, and material with which they have engaged during their coursework and in preparation for their project. It presents original research and is typically 10,000 - 14,000 words in length. For further specific information concerning the GRP, students should consult the departmental guidelines.

Component(s):
Research

RELI 6030 Thesis Proposal (Religions and Cultures) (3 credits)

Description:
Students must submit a thesis proposal on a topic chosen in consultation with the thesis supervisor and the proposal must be approved by the Department's Graduate Studies committee. The proposal for the thesis is 2,500-3,000 words in length. A thesis proposal outlines the student’s proposed research paper, locates their research in relation to existing scholarship, clarifies their methodology and research questions, and includes a bibliography of at least ten academic sources, and any primary materials (such as editions of critical texts), which the students use.

Component(s):
Thesis Research

RELI 6032 Thesis (Religions and Cultures) (24 credits)

Description:
The thesis is a work of primary research that normally runs to 18,000-24,000 words in length, exclusive of footnotes and bibliography. Students are expected to have the requisite language skills to undertake their proposed research.

Component(s):
Thesis Research

Notes:

- This course is graded on a pass/fail basis.
-

Topics in Judaic Studies (MA)

RELI 6012 Selected Topics in Jewish Texts and Literature: Interpretation and Reception (3 credits)

Description:
This course analyzes the sacred texts of Judaism and their interpretation, and focuses on historical contexts and transformations. Topics may also include contemporary literature and popular transmissions of foundational texts. Specific topics are listed in the Graduate Class Schedule.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

RELI 6013 Selected Topics in Canadian Jewish Studies (3 credits)

Description:
This course explores the diversity of Canada's Jewish communities using a wide range of historical, literary, musical, phenomenological, and other approaches. Addressing both experiences and expressions of Canadian Jewish identities and their local and transnational networks, the course examines lived religious practices and communal documents, many of which have been minimally explored. Students are exposed to a variety of methodologies, such as literary criticism, ethnography, sound and music analysis, and historiography. Specific topics are listed in the Graduate Class Schedule.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

RELI 6014 Selected Topics in Jewish Philosophy and Ethics (3 credits)

Description:
This course examines Jewish philosophy in various historical periods. Topics may include ethics, metaphysics, cosmology, post-Holocaust thought, the work of particular Jewish thinkers and reflections on Zionism and the State of Israel. Specific topics are listed in the Graduate Class Schedule.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

RELI 6015 Selected Topics in Material and Popular Culture in Judaism (3 credits)

Description:
This course explores Jewish history and communities through material and popular culture, including the production and use of images, ornaments, inscriptions, art, film, music, and digital media. Specific topics are listed in the Graduate Class Schedule.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

RELI 6017 Selected Topics in Jewish Communities in Historical and Regional Contexts (3 credits)

Description:
This course examines Jewish communities in particular historical and cultural contexts and regions, notably the Middle East, Israel, North America, and Eastern Europe. It explores how Jewish communities have interacted with outsiders, experienced migration, and been shaped by changing social and political circumstances. Specific topics are listed in the Graduate Class Schedule.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

RELI 6018 Jewish Community Engagement (3 credits)

Prerequisite/Corequisite:
Permission of the Graduate Program Director is required.

Description:
Students work in a local Jewish community organization or institution in order to apply their training in religions and cultures to address real world problems revolving around issues such as diversity, religious tolerance, and social justice, including disability, sustainability, and LGBTQIA+ rights.

Component(s):
Practicum/Internship/Work Term

Topics in Religions and Cultures (MA)

RELI 6001 Method and Theory in the Study of Religion (3 credits)

Description:
This course provides students with an understanding of the major approaches to the academic study of religion. It introduces students to key theories of religion as a social and cultural phenomenon, as well as the ways contemporary methodologies represent religious experiences and expressions. Students develop a critical theoretical orientation for their research and a familiarity with the skills that they apply in their coursework and final paper.

Component(s):
Seminar

Notes:

- Students who have received credit for RELI 609 or 610 may not take this course for credit.

RELI 6002 Selected Topics in Texts, Literature, and Interpretation (3 credits)

Description:

This course analyzes the literature or key writings of one or more traditions in their historical context. Topics may include contemporary literature, popular media, or the foundational corpora of a community. Emphasis is placed on familiarizing students with critical approaches to the materials studied. Specific topics are listed in the Graduate Class Schedule.

Component(s):

Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

RELI 6003 Selected Topics in Ethnography and Lived Traditions (3 credits)

Description:

This course applies theoretical approaches drawn from anthropology and ethnography to the study of contemporary forms of various religions and cultures. Topics may include ritual practice, sacred space, embodiment, soundscapes, food, art and conceptions of the secular. Specific topics are listed in the Graduate Class Schedule.

Component(s):

Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

RELI 6004 Selected Topics in Ethics, Philosophy, and Worldviews (3 credits)

Description:
This course examines ethical, philosophical, and natural scientific approaches to religious studies. Topics may include the ethics of care; constructions of the sacred, the self and the body; cosmology and metaphysics; religion and the natural world; and the evolutionary and cognitive study of religion. Specific topics are listed in the Graduate Class Schedule.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

RELI 6005 Selected Topics in Material and Popular Culture (3 credits)

Description:
This course explores how various religious traditions can be understood through material and popular culture, including the production and use of images, ornaments, inscriptions, art, film, music, and digital media. Specific topics are listed in the Graduate Class Schedule.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

RELI 6006 Selected Topics in Women, Gender, and Sexuality (3 credits)

Description:
This course explores perspectives on gender and sexualities in various cultural contexts and religious traditions. Attention is given to theoretical approaches drawn from feminist, gender and queer studies. Specific topics are listed in the Graduate Class Schedule.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

RELI 6007 Selected Topics in Regional and Intercultural Studies (3 credits)

Description:
This course focuses on a particular cultural region, for instance, Tibet, East Asia, South Asia, the Middle East or North America. Topics may include the interdependence of traditions and communities, inter-religious and inter-cultural encounters, migration, and responses to changing social and political circumstances. Specific topics are listed in the Graduate Class Schedule.

Component(s):
Seminar

Notes:

- Subject matter varies from term to term and from year to year. Students may register for this course multiple times provided that the course content has changed.

RELI 6008 Community Engagement (3 credits)

Prerequisite/Corequisite:
Permission of the Graduate Program Director is required.

Description:
In this course, students work in a local community organization or institution in order to apply their training in religions and cultures to address real-world problem solving around religious tolerance, diversity, or issues of social justice. Examples include working on programming with Concordia's Multi-faith and Spirituality Centre; working as a religious educator inside or alongside a particular religious community; organizing and supporting grassroots efforts related to ethics and social justice, such as sustainability, racism and Islamophobia, disability, LGBTQ, or Indigenous rights.

Component(s):
Practicum/Internship/Work Term

Religion PhD Courses

Required Courses (Religion PhD)

RELI 860 Doctoral Comprehensive Examination (15 credits)

Prerequisite/Corequisite:
All course work must be completed prior to enrolling.

Description:
Graduate students in Religion at the doctoral level are expected to pursue a program of independent study and research in their chosen field. The comprehensive examination will consist of three written exams followed by an oral examination which reviews these

exams. In most cases, two of these written exams focus on topics from two distinct religious traditions; the third written exam will be on a topic related to a student's proposed thesis. One of the three exams should include a focus on theory and methodology. Credits are not distributed among these four examinations.

Component(s):
Thesis Research

Notes:

- The thesis research is graded as pass/fail.

RELI 870 Doctoral Thesis (45 credits)

Description:
Each candidate will prepare a doctoral thesis which is to be an original contribution to scholarship. Although the topic should be provisionally chosen and serve as a coordinating factor throughout the student's doctoral program, a written proposal must be formally submitted and approved by the Graduate Studies Committee after the successful completion of the comprehensive examination.

Component(s):
Thesis Research

RELI 890 Doctoral Seminar (6 credits)

Prerequisite/Corequisite:
Enrolment in the Religion PhD is normally required.

Description:
This seminar will deal with general and methodological issues in the study of religion.

Component(s):
Seminar

Notes:

- Discussion and readings will be both in English and in French.
- All PhD students must register for this course in their first or second or equivalent year of study. This course will be held in common with UQAM and Université Laval.

RELI 891 Religions and Cultures Doctoral Seminar (6 credits)

Prerequisite/Corequisite:
Enrolment in the Religion PhD, Religions and Cultures Specialization is required.

Component(s):
Seminar

Notes:

- All PhD students must register for this course in their first or second or equivalent year of study.

RELI 892 Judaic Studies (6 credits)

Prerequisite/Corequisite:
Enrolment in the Religion PhD, Judaic Studies Specialization is required.

Component(s):
Seminar

Notes:

- All PhD students must register for this course in their first or second or equivalent year of study.

Topics in Judaic Studies (PhD)

A student is required to register for a minimum of 18 credits of directed reading. These courses are offered according to the resources of the department and the needs of the students. They are grouped into RELI 800-818 (Topics in Judaic Studies) and RELI 820-839 (Topics in Religions and Cultures). Some of the courses at the Master of Arts level are open to PhD candidates, with the requirement of additional work and higher standards of performance.

RELI 801 Topics in Judaic Studies (3 credits)

Description:
A student is required to register for a minimum of 18 credits of directed reading. These courses are offered according to the resources of the department and the needs of the students. They are grouped into RELI 800-818 (Topics in Judaic Studies) and RELI 820-839 (Topics in Religions and Cultures). Some of the courses at the Master of Arts level are open to PhD candidates, with the requirement of additional work and higher standards of performance.

Component(s):
Seminar

RELI 802 Topics in Judaic Studies (3 credits)

Component(s):
Seminar

RELI 803 Topics in Judaic Studies (3 credits)

Component(s):
Seminar

RELI 805 Topics in Judaic Studies (3 credits)

Component(s):
Seminar

RELI 804 Topics in Judaic Studies (3 credits)

RELI 806 Topics in Judaic Studies (3 credits)

Component(s):
Seminar

RELI 807 Topics in Judaic Studies (3 credits)

Component(s):
Seminar

RELI 809 Topics in Judaic Studies (3 credits)

Component(s):
Seminar

RELI 810 Topics in Judaic Studies (3 credits)

RELI 811 Topics in Judaic Studies (3 credits)

RELI 812 Topics in Judaic Studies (3 credits)

Component(s):
Seminar

RELI 813 Topics in Judaic Studies (3 credits)

RELI 814 Topics in Judaic Studies (3 credits)

RELI 815 Topics in Judaic Studies (3 credits)

RELI 816 Topics in Judaic Studies (3 credits)

RELI 817 Topics in Judaic Studies (3 credits)

RELI 818 Topics in Judaic Studies (3 credits)

Component(s):
Seminar

Topics in Religions and Cultures (PhD)

RELI 820 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 821 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 822 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 823 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 824 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 825 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 826 Topics in Religions and Cultures (3 credits)

RELI 827 Topics in Religions and Cultures (3 credits)

RELI 828 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 829 Topics in Religions and Cultures (3 credits)

RELI 830 Topics in Religions and Cultures (3 credits)

RELI 831 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 832 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 833 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 834 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 835 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 836 Topics in Religions and Cultures (3 credits)

RELI 837 Topics in Religions and Cultures (3 credits)

RELI 838 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

RELI 839 Topics in Religions and Cultures (3 credits)

Component(s):
Seminar

School of Community and Public Affairs Courses

Community Economic Development (CED) Graduate Diploma Courses/ Développement économique communautaire (DEC), diplôme

Cours obligatoires du tronc commun

SCPA 501 Introduction to Community Economic Development / Introduction au developement économique communautaire (3 credits)

Description:

This course provides an overview of CED. It traces the historical and intellectual roots of CED as well as critically situates CED in the context of theories of community, local and regional development. Students are provided with basic tools of macro-economic analysis and policy evaluation as it relates to the practice of CED. This course focuses on the institutional environment in which CED initiatives operate to identify the potential and the limitations of local, community-based development strategies. Special focus is given to the perspectives of CED arising out of the feminist movement, cultural communities, Aboriginal communities, the popular sector and other social change movements. Ce cours offre une vue d'ensemble du DÉC. Il retrace l'historique et les fondements intellectuels du DÉC et situe le DÉC par rapport aux théories du développement communautaire local et régional. Le cours fournit également aux étudiant-e-s des outils de base pour l'analyse macro-économique et pour l'évaluation des politiques sociales relatives à la pratique du DÉC. Ce cours se concentre sur l'environnement institutionnel dans lequel les initiatives de DÉC opèrent afin d'identifier le potentiel et les limites des stratégies de développement axées sur les communautés locales. Une attention particulière est portée aux perspectives de DÉC émanant du mouvement féministe, des communautés culturelles, des communautés autochtones, du mouvement populaire et d'autres mouvements de changement social.

Component(s):

Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français.

SCPA 502 Comparative Approaches and Models in CED / Approches comparatives et modèles de DÉC (3 credits)

Description:

This course focuses on the objectives of CED by examining the various strategies and diversity of models of CED practices in Quebec, as well as many found elsewhere in Canada, the United States, in Europe and in southern hemispheric countries. The differences in organizational structures and empowerment processes, as well as their social, cultural and economic context is studied and evaluated, mainly through case studies of selected communities. Ce cours se concentre sur les objectifs du DÉC en examinant les diverses stratégies et les différents modèles de pratique de DÉC au Québec, ainsi qu'ailleurs au Canada, aux États-Unis, en Europe et dans les pays de l'hémisphère sud. Des études de cas de communautés sélectionnées sont principalement utilisées afin d'étudier et d'évaluer les différences existant au sein des structures organisationnelles et des processus d'empowerment, ainsi que leur contexte social, culturel et économique.

Component(s):

Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français

SCPA 503 Fundamental Skills for CED Practice / Compétences de base en DÉC (3 credits)

Description:

This course focuses on helping students acquire a working knowledge of the practical skills required for building community economic capacity. This includes developing tools to map the material, environmental and human resources within communities. This course assists students in designing socio-economic indicators and a framework for evaluation of CED initiatives and strategic planning. Students are encouraged to identify, as soon as possible, how the use of such skills can be incorporated into either a CED project or an internship within a CED initiative. Ce cours aide les étudiants et étudiantes à acquérir une connaissance d'usage des compétences pratiques requises pour bâtir la capacité de prise en charge économique d'une communauté. Ceci comprend l'élaboration d'outils permettant d'inventorier les ressources matérielles, environnementales et humaines au sein d'une communauté. Ce cours aide aussi les étudiants et étudiantes à élaborer des indices socio-économiques ainsi qu'un cadre d'évaluation des initiatives de DÉC et de la planification stratégique. Les étudiant-e-s sont encouragé-e-s, le plus tôt possible, à identifier comment ils/elles pourront inclure ces compétences dans un projet de DÉC ou un stage à l'intérieur d'une initiative de DÉC.

Component(s):

Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français.

SCPA 504 Community Organizing and CED / Organisation communautaire et DÉC (3 credits)

Description:

This course focuses on helping students acquire a working knowledge of the practical skills required in community organizing and capacity building for individual and community empowerment within a CED context. The course explores the role of popular education in community mobilization and collective action, and delves into the strategies, tactics and techniques of community intervention. Ce cours permet aux étudiant-e-s d'acquérir une connaissance d'usage des compétences pratiques nécessaires pour maîtriser l'organisation communautaire et pour développer l'empowerment des individus et des communautés dans un contexte de DÉC. Ce cours explore le rôle que joue l'éducation populaire dans la mobilisation des communautés et dans l'action collective, et approfondit les tactiques, stratégies et techniques de l'intervention communautaire.

Component(s):

Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français

SCPA 505 Social Enterprise Development and Social Entrepreneurship / Développement d'entreprises sociales et entreprenariat social (3 credits)

Description:

This course provides a framework for business development within a CED perspective. Basic tools for enterprise development, including comprehensive business planning, data evaluation, financial analysis, and forecasting are to be integrated into a social and ethical framework to maintain the democratic objectives of CED. Students develop skills in evaluating a successful commercial venture within the context of these larger objectives. Ce cours propose un cadre de référence pour le développement d'entreprises selon une perspective de DÉC. Des outils de base pour le développement d'entreprises, incluant le développement de plans d'affaires complets, l'évaluation de données, l'analyse financière et l'élaboration de prévisions, seront intégrés dans un cadre social et éthique afin de préserver les objectifs démocratiques du DÉC. Les étudiant-e-s développent les compétences requises afin d'évaluer le succès d'une entreprise commerciale en tenant compte du contexte global de ces objectifs.

Component(s):

Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français

Projet

SCPA 508 Financing CED Initiatives: Part I / Le financement des initiatives de DÉC. Partie I (3 credits)

Description:

This course examines the roles which can be played by both traditional (banks) and non-traditional (community loan funds) financial institutions in supporting CED initiatives. Special emphasis is placed on exploring alternative financial CED structures. Skills are developed to understand and generate financial planning, as well as investment decisions in traditional and non-traditional enterprises. Ce cours permet d'étudier les rôles que peuvent jouer les institutions financières traditionnelles (les banques) et non traditionnelles (les associations communautaires de prêt) pour soutenir les initiatives de DÉC. Une attention particulière est portée à l'étude des structures financières alternatives de DÉC. Les compétences requises afin de comprendre et d'initier la planification financière ainsi que la prise de décision quant aux investissements dans les entreprises traditionnelles et non traditionnelles sont également développées.

Component(s):

Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français.

SCPA 509 Financing CED Initiatives: Part II / Le financement des initiatives de DÉC. Partie II (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: SCPA 508. Le cours suivant doit être suivi au préalable : SCPA 508.

Description:
This course uses a case study approach to critically examine and evaluate existing alternative CED initiatives in Canada and the US. This may include on site visits, interviews and occasional guest lecturers. La seconde partie de ce cours empruntera une approche d'étude de cas pour examiner de façon critique et évaluer des initiatives originales de DÉC au Canada et aux États-Unis. Cela pourrait comprendre la visite de sites, des entrevues et des conférences occasionnelles.

Component(s):
Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français

SCPA 510 CED Field Project - Part I / Projet en DÉC. Partie I (3 credits)

Description:
SCPA 510 structures the Field Project. It introduces students to tools that can be used to design and implement their projects. During this course, students begin to implement their plan with the host organization. Assignments are based on the integration of the tools with the work undertaken in the field project. This course is part of the requirement that students complete a two-semester field project in some aspect of community economic development. This project is selected and negotiated by the student with a community organization and addresses a particular challenge raised within this setting. En suivant le programme à temps plein, les participant-e-s devront, une fois les trois premiers cours principaux du trimestre d'automne complétés, entreprendre un cours de projet de deux trimestres dans un domaine du développement économique communautaire relié à leur spécialisation ou à champ d'intérêts. Ce projet peut se dérouler au sein du milieu de travail ou de bénévolat du/de la participant-e. Le projet pratique constitue une occasion pour les participant-e-s de faire face - de manière participative - à un défi particulier qui les passionne et qui est perçu comme important par l'organisme au sein duquel le projet se déroule. Les participant-e-s devront faire appel à leurs forces, leurs expériences passées, et leurs talents, tout en tenant compte de leurs objectifs d'apprentissage. Tous les participantes et participants devront assumer la responsabilité de définir, chercher et négocier leurs projets pratiques par eux-mêmes, avec, bien sur, l'appui du programme de diplôme de 2e cycle en DÉC.

Component(s):
Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français

SCPA 511 CED Field Project - Part II / Projet DÉC. Partie II (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: SCPA 510. Le cours suivant doit être suivi au préalable : SCPA 510.

Description:

Students continue their field project for a second term within the framework of this course. They build on the practice of the previous term and advance it to reach the objectives established with their host organization. This course aims to strengthen the student's skills in the critical evaluation of practice. Students examine their practice and the reasons for its success, as well as examine strategies for overcoming the barriers they faced. This course offers a framework for the final written report required of students, to be both shared with their host organizations and submitted for the course. Dans la deuxième partie du cours, les participant-e-s analyseront de façon critique leur progrès au sein de leurs projets respectifs, et rédigeront un rapport final résumant et évaluant le projet et les expériences que celui-ci les a amené-e-s à vivre. Ce projet permettra de vérifier les compétences acquises et de valider les idées et théories apprises dans une situation réelle. Des practicien-ne-s de DÉC sont invité-e-s à participer à l'évaluation des résultats du projet.

Component(s):

Lecture

SCPA 515 Housing and Land Use from a CED Perspective: Part I / Logement et aménagement du territoire dans une perspective de DÉC. Partie I (3 credits)

Description:

This course examines the institutional, economic, political, and environmental factors which affect land policy, and the development of affordable housing. It identifies public and private financial sources and various forms of ownership models including community land trusts and housing cooperatives, among others. Among the skills developed are those related to market analysis and housing needs assessment, site selection and control, and preparing housing projects. Ce cours examine les facteurs institutionnels, économiques, politiques et environnementaux qui influent sur la politique d'aménagement du territoire et la création de logements à prix modique. Il décrit aussi les sources financières publiques et privées ainsi que diverses formes de propriété, y compris les fiducies foncières communautaires et les coopératives de logement. Il permet d'acquérir, entre autres, des compétences en analyse du marché, évaluation des besoins en logement, sélection et contrôle des sites, et préparation de projets domiciliaires.

Component(s):

Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français.

SCPA 516 Housing and Land Use from a CED Perspective: Part II / Logement et aménagement du territoire dans une perspective de DÉC. Partie II (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: SCPA 515. Le cours suivant doit être suivi au préalable : SCPA 515.

Description:

This course uses a case study approach to critically examine and evaluate existing housing projects, affordable housing and land policy based on a selection of experiences in the U.S. and in Canada. This may include on site visits, interviews and occasional guest lecturers. Ce cours se fonde sur des études de cas américaines et canadiennes afin d'effectuer un examen critique et une évaluation de projets domiciliaires existants, du logement à prix modique et de la politique d'aménagement du territoire. Il pourrait comprendre des visite de sites, des entrevues et des conférences occasionnelles.

Component(s):
Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français

SCPA 522 Communications, Technology and CED: Part I / Communications, technologie et DÉC. Partie I (3 credits)

Description:
This course explores issues related to information management, analysis and dissemination using different vehicles available including mass media, the Internet, and other new technologies as they emerge. Basic computer literacy is required. Ce cours explore les questions liées à la gestion, à l'analyse et à la diffusion de l'information par différents moyens, y compris les médias de masse, Internet, et les technologies en émergence. Les participant-e-s doivent posséder des connaissances de base en informatique.

Component(s):
Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français

SCPA 523 Communications, Technology and CED: Part II / Communications, technologie et DÉC. Partie II (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: SCPA 522. Le cours suivant doit être suivi au préalable : SCPA 522.

Description:
This course equips practitioners with skills required to share and diffuse CED practices across communities that work in isolation and helps to develop the skills required for communities to use the new technologies and resources necessary for development purposes. Ce cours dote les praticien-ne-s des compétences nécessaires pour diffuser largement les pratiques de DÉC dans des collectivités qui travaillent souvent dans l'isolement, et pour leur transmettre les compétences dont elles ont besoin afin d'utiliser les nouvelles technologies comme instruments de développement.

Component(s):
Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français

SCPA 529 International Development and CED: Part I / Développement international et DÉC. Partie I (3 credits)

Description:

This course explores community-based economic development approaches in countries of the South within their socio-political and historical context. Many economic initiatives in the North have borrowed from these experiences. The course explores the advantages and disadvantages of importing and exporting development models and practices and equips the students with the skills to evaluate the appropriateness of CED models and how to adapt the models, wherever required. Ce cours examine les approches communautaires de développement économique des pays du Sud dans leur contexte socio-politique et historique. De nombreuses initiatives économiques du Nord s'inspirent de ces expériences. Le cours explore aussi les avantages et les désavantages de l'importation et de l'exportation de modèles et de pratiques de développement, et permet d'acquérir les compétences nécessaires pour évaluer l'à-propos de modèles de DÉC et les adapter, au besoin.

Component(s):

Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français

SCPA 530 International Development and CED: Part II / Développement international et DÉC. Partie II (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: SCPA 529. Le cours suivant doit être suivi au préalable : SCPA 529.

Description:

This course explores existing North/South networking and collaboration by identifying non-governmental organizations, community groups and social movements which are working together to develop CED strategies in their respective countries. Discussion is encouraged through class seminars and occasional guest lectures. La seconde partie de ce cours explore les réseaux et la collaboration Nord-Sud en identifiant les organismes non gouvernementaux, les groupes communautaires et les mouvements sociaux qui travaillent ensemble pour formuler des stratégies de DÉC dans leur pays respectif. On encourage la discussion par des séminaires et des conférences occasionnelles.

Component(s):

Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français.

SCPA 536 Aboriginal CED: Part I / Le DÉC en mileu autochtone. Partie I (3 credits)

Description:

This course assists participants in exploring specific issues related to Aboriginal community economic development in particular settings (on reserve, urban, rural and northern communities), and addresses challenges common to Aboriginal CED. The course assists participants in exploring historical and contemporary relationships between Aboriginal communities and the predominant cultural and economic forces,and compares traditional Aboriginal organizing and economic practices with the new approaches being proposed by CED. Ce cours aide les participant-e-s à étudier des enjeux spécifiques liés au développement économique autochtone,

en particulier le contexte (réserve, milieu urbain, rural ou nordique), ainsi qu'à affronter des défis fréquents en DÉC autochtone. Le cours étudie également les rapports historiques et contemporains entre les communautés autochtones et les forces culturelles et économiques prédominantes, et compare les pratiques organisationnelles et économiques traditionnelles avec les nouvelles approches que propose le DÉC.

Component(s):
Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français

SCPA 537 Aboriginal CED: Part II / Le DÉC en mileu autochtone. Partie II (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: SCPA 536. Le cours suivant doit être suivi au préalable : SCPA 536.

Description:
This course uses a case study approach to evaluate one or more community economic development strategies applied within an Aboriginal community. A historical overview of this experience outlines the cultural and political context which has shaped these strategies as well as their results. CED approaches are examined in the context of this individual experience. This course may include on site visits and guest lecturers. Open Sessions. Ce cours utilise une approche d'étude de cas pour évaluer une ou plusieurs stratégies de développement économique communautaire en contexte autochtone. Un survol historique de cette expérience dessine le contexte qui a façonné ces stratégies autant que leurs résultats. Les approches de DÉC sont examinées dans le contexte de cette expérience particulière. Cela peut comprendre la visite de sites et des conférences occasionnelles. Sessions ouvertes .

Component(s):
Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français

SCPA 543 A-Z Open Sessions / A - Z Sessions ouvertes (1 credits)

Description:
The themes and content of the various open sessions are determined at the beginning of each academic year. Three open sessions are offered every year (1 credit each for a total of 3 credits). Possible topics may include: feminist approaches to CED, lobbying decision-making bodies, consensus management, coalition-building, and using the internet for community development purposes - as well as topics related to current events. Les thèmes et contenu des diverses sessions ouvertes sont déterminés au début de chaque année académique. Trois sessions ouvertes sont offertes chaque année (1 crédit chacune sur un total de 3 crédits). Voici quelques-uns des sujets possibles : les approches féministes en développement économique communautaire, le lobbying auprès d'instances décisionnelles, la gestion consensuelle, et la formation de coalitions et l'usage d'internet dans un but de développement communautaire - de même que des sujets liés à l'actualité.

Component(s):

Lecture

Notes:

- This course may be offered in English or French. Ce cours peut être offert en anglais ou en français.

Sociology and Anthropology Courses

Social and Cultural Anthropology MA Courses

ANTH 600 Identity and Difference (3 credits)

Description:
This course explores the processes of social differentiation and identification.

Component(s):
Seminar

ANTH 601 Decolonizing Anthropology (3 credits)

Description:
This course examines the roots of anthropological theory in Western culture and the decolonization of anthropology since the 1960s.

Component(s):
Seminar

ANTH 610 Ethnographic Research and Ethics (3 credits)

Description:
This course explores the methods and ethical dimensions of ethnographic research and representation.

Component(s):
Seminar

ANTH 620 Writing Ethnography (3 credits)

Description:
This course examines a range of methods and styles for presenting ethnographic material, from ethnographic realism to fiction, and encourages further experimentation.

Component(s):
Seminar

ANTH 630 New Directions in Anthropological Research (3 credits)

Description:
This course explores emergent concepts, methods and topics in anthropology. Content changes in accordance with the research focus of the professor leading the course.

Component(s):
Seminar

ANTH 640 Special Topics I (3 credits)

Description:
This course, selected in consultation with the student's thesis supervisor, may be taken from a cognate discipline.

Component(s):
Tutorial

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.

ANTH 641 Special Topics II (3 credits)

Description:
This course, selected in consultation with the student's thesis supervisor, is offered as the occasion arises, for example, when a faculty member returns from the field, or when a visiting professor is in residence.

Component(s):
Tutorial

Notes:

- Subject matter varies from term to term and from year to year. Students may re-register for this course provided that the course content has changed.

ANTH 660 Professional Development Seminar (3 credits)

Description:
This seminar is designed to help students develop the professional skills needed to pursue a career in research, practice or teaching. Students are exposed to a variety of research approaches through presentations by a diversity of faculty researchers.

Component(s):
Seminar

Notes:

- This seminar takes place every two weeks over the course of the Fall and Winter semesters.

ANTH 690 Field Research Proposal (3 credits)

Description:
Students enrolled in the thesis - field research option are required to demonstrate their ability to carry out independent ethnographic field research. Students develop a research proposal under the direction of their thesis supervisor, which serves as the basis for ANTH 6910 and ANTH 6920. The field research proposal serves as a basis of the written thesis. Students then orally defend the thesis - field research before an examining committee.

Component(s):
Thesis Research

ANTH 693 Bibliographic Research Proposal (3 credits)

Description:
This guided seminar is the first stage in the thesis- bibliographic research that is completed in ANTH 6950. Under the direction of the supervisor, students prepare a bibliographic research proposal that includes a preliminary reading list.

Component(s):
Thesis Research

ANTH 6920 Thesis - Field Research (21 credits)

Prerequisite/Corequisite:
The following courses must be completed previously:ANTH 6910.

Description:
The thesis - field research is required to demonstrate that the student has been able to carry out independent field research. It should be a work of near publishable quality. The thesis is evaluated by the student's Thesis Committee and one other faculty member. The student is also required to defend the thesis orally before the above-mentioned examiners.

Component(s):
Thesis Research

Notes:

- Students who have received credit for ANTH 692 may not take this course for credit.

ANTH 6910 Fieldwork: Stage (3 credits)

Prerequisite/Corequisite:
The following course must be taken previously or concurrently: ANTH 690.

Description:
The fieldwork requirement, which may last from three to four months, involves undertaking research in a community which differs in important respects from the student's communities of reference, and collecting ethnographic data. This research forms the basis of the student's thesis.

Component(s):
Fieldwork; In Person (P)

Notes:

- Students who have taken ANTH 691 may not take this course for credit.

ANTH 6940 Bibliographic Research (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ANTH 693.

Description:
Under the direction of the supervisor, students review the literature (which may include both academic and grey literature sources) which forms the basis of the students' thesis - bibliographic research that is completed in ANTH 6950.

Component(s):
Thesis Research

ANTH 6950 Thesis - Bibliographic Research (18 credits)

Prerequisite/Corequisite:

Description:
Students are required to write the thesis - bibliographic research under the supervision of one faculty member and are evaluated by two faculty members, including the supervisor. It can either be a literature review of a substantive nature, or a report on empirical research. Students are expected to submit work of publishable or near publishable quality.

Component(s):
Thesis Research

Sociology MA Courses

SOCI 602 Issues in Classical Sociological Theory (3 credits)

Description:

This course is designed to examine selected classical texts and analyze the work of recent interpreters and critics. During this course, we will endeavour to develop our critical understanding of the classics. In addition, we will strive to create an awareness of the diversity of readings of classical texts that will enhance our ability to make further critical appropriations, revisions, and uses of the classical tradition.

Component(s):

Seminar

SOCI 603 Issues in Contemporary Sociological Theory (3 credits)

Description:

This course is an in-depth study of issues in contemporary sociological theory. It is designed to foster awareness of the plurality, diversity, and divergence among contemporary readers and readings of current texts. The focus is on critical analysis of major writings representing diverse theoretical orientations in recent sociology. Attention is given to fundamental assumptions and to practical implications of given orientations and styles of sociology.

Component(s):

Seminar

SOCI 612 Quantitative Research Design and Methods (3 credits)

Description:

This course explores quantitative research design and methodology as a whole process, from conceptualization to research questions, methods, data analysis, and results dissemination. Topics include data structures and their relation to theory; data collection; access to and use of large data sets; coding and validity and reliability issues; statistical techniques as generalized linear models; linear and logistic regression. Students apply various methods to read data. Ethical issues are also considered.

Component(s):

Seminar

SOCI 613 Qualitative Research Design and Methods (3 credits)

Description:

This course explores research methodology, design, analysis and dissemination. Topics include focus groups, participant observation, open-ended and structured interviewing, content and discourse analysis, life histories and historical analysis. Analysis will also explore approaches to coding qualitative data and the links between data and conceptual and theoretical categories. Ethical issues as well as issues of researcher safety in the field are considered.

Component(s):

Seminar

SOCI 660 Professional Development Seminar (3 credits)

Description:
This seminar is designed to help students develop the professional skills needed to pursue a career in research, practice or teaching. Students are exposed to a variety of research approaches through presentations by a diversity of faculty researchers.

Component(s):
Seminar

Notes:

- This course is graded as pass/fail.
- This seminar takes place every two weeks over the course of the Fall and Winter semesters.

SOCI 690 Research Proposal (3 credits)

Description:
Students develop a research proposal under the direction of their thesis supervisor. The research proposed here forms the basis of SOCI 691 (Thesis - Primary Research).

Component(s):
Thesis Research

SOCI 691 Thesis - Primary Research (21 credits)

Description:
Students enrolled in the thesis - primary research option are required to demonstrate their ability to carry out independent research. This takes the form of a written thesis of at least article length. Students orally defend the thesis before an examining committee.

Component(s):
Thesis Research

SOCI 695 Thesis - Bibliographic Research (18 credits)

Description:
The thesis - bibliographic research is written under the supervision of one faculty member and is evaluated by two faculty members, including the supervisor. It can either be a literature review of a substantive nature, or a report on empirical research. Students are expected to submit work of publishable or near publishable quality. The appropriate length of the thesis is approximately 40 pages.

Component(s):
Thesis Research

Sociology MA Selected Topics

The offerings for the following courses will be reviewed each year in light of the interest of students and faculty members. Five elective courses are offered each academic year from the list given below. Courses numbered “700” are advanced studies and normally will be conducted on a tutorial basis. The corresponding 600-level course is a prerequisite to the 700-level course.

SOCI 601 Topics in Advanced Theory (3 credits)

Component(s):
Seminar

SOCI 611 Topics in Advanced Methodology (3 credits)

Component(s):
Seminar

SOCI 620 Population and Society (3 credits)

Also listed as SOCI 720.

Component(s):
Seminar

SOCI 622 Studies in Race and Ethnicity (3 credits)

Also listed as SOCI 722.

Component(s):
Seminar

SOCI 625 Sociology of Culture (3 credits)

Also listed as SOCI 725.

Component(s):
Seminar

SOCI 626 North American Societies (3 credits)

Also listed as SOCI 726.

Component(s):
Seminar

SOCI 627 Social Movements and Social Change (3 credits)

Also listed as SOCI 727.

Component(s):
Seminar

Notes:

SOCI 632 Sociology of the Family (3 credits)

Also listed as SOCI 732.

Component(s):
Seminar

SOCI 633 Sociology of Knowledge (3 credits)

Also listed as SOCI 733.

Component(s):
Seminar

SOCI 635 Gender Studies (3 credits)

Also listed as SOCI 735.

Component(s):
Seminar

SOCI 637 Development (3 credits)

Also listed as SOCI 737.

Component(s):
Seminar

SOCI 638 The City (3 credits)

Also listed as SOCI 738.

Component(s):
Seminar

SOCI 639 Social Problems (3 credits)

Also listed as SOCI 739.

Component(s):
Seminar

SOCI 640 Community Studies (3 credits)

Also listed as SOCI 740.

Component(s):
Seminar

SOCI 642 Studies in Governance (3 credits)

Also listed as SOCI 742.

Component(s):
Seminar

SOCI 644 Sociology of the Body (3 credits)

Also listed as SOCI 744.

Component(s):
Seminar

SOCI 645 Sociology of Men (3 credits)

Also listed as SOCI 745.

Component(s):
Seminar

SOCI 646 Globalization (3 credits)

Also listed as SOCI 746.

Component(s):
Seminar

SOCI 647 Democracy and Citizenship (3 credits)

Also listed as SOCI 747.

Component(s):
Seminar

SOCI 648 Health, Illness and Medicine (3 credits)

Also listed as SOCI 748.

Component(s):
Seminar

SOCI 649 Media and Communication (3 credits)

Also listed as SOCI 749.

Component(s):
Seminar

SOCI 650 Special Topic in Sociology I (3 credits)

Component(s):
Seminar

SOCI 651 Special Topic in Sociology II (3 credits)

Component(s):
Seminar

SOCI 652 Self and Subjectivity (3 credits)

Also listed as SOCI 752.

Component(s):
Seminar

SOCI 653 Intellectual Biography (3 credits)

Also listed as SOCI 753.

Component(s):
Seminar

SOCI 720 Population and Society (3 credits)

Also listed as SOCI 620.

Component(s):

Seminar

SOCI 722 Studies in Race and Ethnicity (3 credits)

Also listed as SOCI 622.

Component(s):
Seminar

SOCI 725 Sociology of Culture (3 credits)

Also listed as SOCI 625.

Component(s):
Seminar

SOCI 726 North American Societies (3 credits)

Also listed as SOCI 626.

Component(s):
Seminar

SOCI 727 Social Movements and Social Change (3 credits)

Also listed as SOCI 627.

Component(s):
Seminar

SOCI 732 Sociology of the Family (3 credits)

Also listed as SOCI 632.

Component(s):
Seminar

SOCI 733 Sociology of Knowledge (3 credits)

Also listed as SOCI 633.

Component(s):
Seminar

SOCI 735 Gender Studies (3 credits)

Also listed as SOCI 635.

Component(s):
Seminar

SOCI 737 Development (3 credits)

Also listed as SOCI 637.

Component(s):
Seminar

SOCI 738 The City (3 credits)

Also listed as SOCI 638

Component(s):
Seminar

SOCI 739 Social Problems (3 credits)

Also listed as SOCI 639.

Component(s):
Seminar

SOCI 740 Community Studies (3 credits)

Also listed as SOCI 640.

Component(s):
Seminar

SOCI 742 Studies in Governance (3 credits)

Also listed as SOCI 642.

Component(s):
Seminar

SOCI 744 Sociology of the Body (3 credits)

Also listed as SOCI 644.

Component(s):
Seminar

SOCI 745 Sociology of Men (3 credits)

Also listed as SOCI 645.

Component(s):
Seminar

SOCI 746 Globalization (3 credits)

Also listed as SOCI 646.

Component(s):
Seminar

SOCI 747 Democracy and Citizenship (3 credits)

Also listed as SOCI 647.

Component(s):
Seminar

SOCI 748 Health, Illness and Medicine (3 credits)

Also listed as SOCI 648.

Component(s):
Seminar

SOCI 749 Media and Communication (3 credits)

Also listed as SOCI 649.

Component(s):
Seminar

SOCI 750 Special Topic in Sociology I (3 credits)

Also listed as SOCI 650.

Component(s):
Lecture; Tutorial; Reading

SOCI 751 Special Topic in Sociology II (3 credits)

Also listed as SOCI 651.

Component(s):
Tutorial; Reading

SOCI 650 Special Topic in Sociology I (3 credits)

Also listed as SOCI 750.

Component(s):
Lecture; Tutorial; Reading

SOCI 651 Special Topic in Sociology II (3 credits)

Also listed as SOCI 751.

Component(s):
Lecture

SOCI 752 Self and Subjectivity (3 credits)

Also listed as SOCI 652.

Component(s):
Seminar

SOCI 753 Intellectual Biography (3 credits)

Also listed as SOCI 653.

Component(s):
Seminar

Social and Cultural Analysis PhD Courses

Required Courses

SOAN 800 General Seminar (6 credits)

Description:
This course focuses on orientating the common epistemological interests of sociological and anthropological approaches to social and cultural analysis in the four areas of specialization. In order to maximize interdisciplinary coverage, the seminar is led by two faculty members, one trained in sociology and one in anthropology.

Component(s):
Seminar

SOAN 820 Professional Development (3 credits)

Description:
This course is designed as a seminar in which guest speakers orally present the results of their work and practical information on various professional skills (professionalization). Students are exposed to a variety of research conducted in the two disciplines and

acquire communication and teaching skills necessary for working in the real world (defined as both academic and non-academic). Students learn how to present research results to a variety of audiences, how to address issues related to university teaching, and how to deal with ethical issues in the research context. Each week, students must submit a written report on the presentation of the previous week.

Component(s):
Seminar

Notes:

- The course is graded as Pass/Fail.
- This course is mandatory for all students in the program.

SOAN 840 General Seminar (3 credits)

Description:
Designed as a preparation to the research involved in the thesis, the second general seminar focuses on the development of writing and research capacities, preparing research proposals, addressing issues in theory and method in relation to various topics, covering literature reviews. One faculty member is responsible for this seminar.

Component(s):
Seminar

SOAN 850 Comprehensive Exam I (6 credits)

Description:
Towards the end of their first year in the program, and in consultation with their thesis supervisor, PhD students form an advisory committee of three faculty members, including their supervisor, to assist in the preparation of the comprehensive exams. The core reading list consists of approximately 25 titles. The ultimate goal of the exams is to establish a candidate's academic specialization. After completing the exam, students should have acquired sufficient background to teach a course and/or conduct advanced research in the area. This examination, as well as SOAN 860 Comprehensive Exam II, normally take place before the end of the student's second year in the program. Each exam takes the form of a written essay (20-25 pages) that the student has three weeks to write.

Component(s):
Thesis Research

Notes:

- The student's advisory committee members evaluate the exam as earning a grade of pass or fail. To constitute a successful exam, it must receive a grade of pass from all three members of the committee. Students who fail one of these exams are allowed to take it for a second time during the following term. A second failure leads to the student's withdrawal from the program.
- All candidates are required to write two 6-credit comprehensive exams. The topics for these exams are set at the end of the first year or beginning of the second year, and the exams completed within the second year of the program. Each comprehensive exam is assessed by a committee of three faculty members drawn from the two disciplines, and formed in consultation with the

student's supervisor.

SOAN 860 Comprehensive Exam II (6 credits)

Description:

Towards the end of their first year in the program, and in consultation with their thesis supervisor, PhD students form an advisory committee of three faculty members, including their supervisor, to assist in the preparation of the comprehensive exams. The core reading list consists of approximately 25 titles. The ultimate goal of the exams is to establish a candidate's academic specialization. After completing the exam, students should have acquired sufficient background to teach a course and/or conduct advanced research in the area. This examination, as well as SOAN 850 Comprehensive Exam I, normally take place before the end of the student's second year in the program. Each exam takes the form of a written essay (20-25 pages) that the student has three weeks to write.

Component(s):

Thesis Research

Notes:

- The student's advisory committee members evaluate the exam as earning a grade of pass or fail. To constitute a successful exam, it must receive a grade of pass from all three members of the committee. Students who fail one of these exams are allowed to take it for a second time during the following term. A second failure leads to the student's withdrawal from the program.
- All candidates are required to write two 6-credit comprehensive exams. The topics for these exams are set at the end of the first year or beginning of the second year, and the exams completed within the second year of the program. Each comprehensive exam is assessed by a committee of three faculty members drawn from the two disciplines, and formed in consultation with the student's supervisor.

SOAN 870 Thesis Proposal (3 credits)

Description:

A candidate who has successfully completed the course requirements and the comprehensive exams must submit a thesis proposal to the Graduate Program Director and the thesis committee. The thesis committee, selected in consultation with the GPD, is composed of three members representing both Sociology and Anthropology. It may be the student's initial advisory committee. The thesis proposal should describe the topic of the thesis, situate it in the relevant literature, and discuss the intended research methods. The written version of the proposal is approved by the members of the thesis committee and followed by an oral defense before the committee members. Following this, the PhD candidate is invited to present his thesis proposal in a departmental seminar.

Component(s):

Thesis Research

SOAN 890 Thesis (57 credits)

Description:

Doctoral candidates submit a thesis based on their research and defend it in an oral examination. The thesis is expected to make an

original contribution to knowledge, to be based on primary sources and to be presented in an acceptable form. The thesis should normally be no more than 400 pages in length (or equivalent if a non-literary format is used).

Component(s):

Thesis Research

Theological Studies Courses

THEO 603 Method in Theology (3 credits)

Description:
This course introduces students to theological method: the questions, insights, and philosophical presuppositions that determine theological frameworks with some attention to modern systematic theology and Christian ethics. Students acquire a differentiated appreciation for the types of theology, the scope of distinct theological fields, and their research horizons.

Component(s):
Seminar

THEO 604 Theological Hermeneutics (3 credits)

Description:
This course introduces students to the notion of church as interpretative community, and to experience diverse ways of utilizing this notion. Students develop an understanding of the basic principles of theological hermeneutics (the science or theory of interpretation), including a survey of the history of the disciple from early times up to present day.

Component(s):
Seminar

THEO 605 Methods in Biblical Studies (3 credits)

Description:
This course focuses on tools and methods employed in biblical studies and ancient literature related to the Bible (up to 600 CE). Synchronic and diachronic approaches are discussed but the course focuses primarily on diachronic methods (form and genre criticism, comparative method, etc.) Students are trained to develop skills in analyzing texts using biblical methods.

Component(s):
Seminar

THEO 690 Annotated Bibliography and Thesis Proposal (6 credits)

Description:
The annotated bibliography and thesis proposal constitute preliminary phases necessary for the writing of the MA thesis. The annotated bibliography and thesis proposal are supervised by the supervisor of the thesis and are assessed on a pass/fail basis.

Component(s):
Thesis Research

Notes:

- Students who have received credit for THEO 685 or 695 may not take this course for credit.

THEO 6910 Research Paper Preparation (3 credits)

Description:
This guided seminar helps students prepare a proposal for the substantial research paper that is completed in THEO 6911. This course is graded on a pass/fail basis.

Component(s):
Research

THEO 6911 Research Paper (6 credits)

Prerequisite/Corequisite:
The following course must be completed previously: THEO 6910.

Description:
This guided course allows students to complete a substantial research paper based on the proposal developed in THEO 6910. The paper may be prepared in conjunction with any seminar course but is separate from the basic course requirements.

Component(s):
Research

Notes:

- This course is graded on a pass/fail basis.

THEO 6920 Applied Project in Theology Preparation (3 credits)

Description:
The aim of this course is to give students the opportunity to engage in critical theological reflection by frequenting a milieu where theological interpretation occurs on a regular basis (e.g. a local parish, a confessional school, a religious formation program, religious programming in the media, etc.) in order to assess the theological models presupposed in the activity studied. The practicum includes a 3-credit reading component related to the field of study.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.

THEO 6921 Applied Project in Theology (6 credits)

Prerequisite/Corequisite:
The following course must be completed previously: THEO 6920.

Description:
The aim of this course is to give students the opportunity to complete a written project based on THEO 6920.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.

THEO 697 Thesis (21 credits)

Description:
The thesis shall consist in the presentation of the research results. Each thesis shall be examined by a committee consisting of the student's supervisor and by at least two other scholars from the Department. The remaining regulations concerning the thesis examination are in accordance with the School of Graduate Studies.

Component(s):
Thesis Research

Notes:

- See Thesis Regulations for further detail.

Theology Topic Courses

Topics in Scripture Courses

THEO 621 Old Testament I (3 credits)

Component(s):
Seminar

THEO 623 Old Testament II (3 credits)

Component(s):
Seminar

THEO 627 Questions in Old Testament Research (3 credits)

Component(s):
Seminar

THEO 629 Intertestament Studies (3 credits)

Component(s):
Seminar

THEO 631 New Testament I (3 credits)

Component(s):
Seminar

THEO 633 New Testament II (3 credits)

Component(s):
Seminar

THEO 635 New Testament III (3 credits)

Component(s):
Seminar

THEO 637 Questions in New Testament Research (3 credits)

Component(s):
Seminar

THEO 639 Biblical Studies (3 credits)

Component(s):
Seminar

Topics in Church History Courses

THEO 641 History I (3 credits)

Component(s):
Seminar

THEO 643 History II (3 credits)

Component(s):
Seminar

THEO 645 History III (3 credits)

Component(s):
Seminar

THEO 647 Research in History of Christian Thought (3 credits)

Component(s):
Seminar

THEO 649 Questions in Christian Worship (3 credits)

Component(s):
Seminar

Topics in Theology Courses

THEO 651 Theology I (3 credits)

Component(s):
Seminar

THEO 653 Theology II (3 credits)

Component(s):
Seminar

THEO 655 Theology III (3 credits)

Component(s):
Seminar

THEO 657 Questions in Theological Research (3 credits)

Component(s):
Seminar

THEO 661 Ecclesiology I (3 credits)

Component(s):
Seminar

THEO 663 Ecclesiology II (3 credits)

Component(s):
Seminar

THEO 664 Ecclesiology III (3 credits)

Component(s):
Seminar

THEO 667 Research In Ecclesiology (3 credits)

Component(s):
Seminar

THEO 669 Theology & World Religions (3 credits)

Component(s):
Seminar

Topics in Christian Ethics Courses

THEO 671 Ethics I (3 credits)

Component(s):
Seminar

THEO 673 Ethics II (3 credits)

Component(s):
Seminar

THEO 675 Issues in Ethical Research (3 credits)

Component(s):
Seminar

Fine Arts Courses

Art Education Courses

Art History Courses

Creative Arts Therapies Courses

Design Courses

Interdisciplinary Courses in Fine Arts

Mel Hoppenheim School of Cinema Courses

Music Courses

Studio Arts Courses

Art Education Courses

Art Education MA Courses

Each year required courses and certain electives are offered. Course descriptions and schedules are available in the department's graduate programs office.

ARTE 606 Topics in Studio Inquiry (3 credits)

Description:
In this course students identify the content and the processes essential to their on-going studio performance. Students are expected to develop parallel inquiry into exhibitions, installations, performances, documentations, notation systems and related readings. Evaluation is based on workshop and seminar participation, studio performance and class presentations. Computer access and shared studio space are available.

Component(s):
Studio; Laboratory

Notes:

- This course may be repeated as ARTE 607, ARTE 608, ARTE 609, ARTE 610, ARTE 611.

ARTE 607 Topics in Studio Inquiry (3 credits)

Description:
In this course students identify the content and the processes essential to their on-going studio performance. Students are expected to develop parallel inquiry into exhibitions, installations, performances, documentations, notation systems and related readings. Evaluation is based on workshop and seminar participation, studio performance and class presentations. Computer access and shared studio space are available.

Component(s):
Studio; Laboratory

Notes:

- Students enrol in this course if they wish to repeat ARTE 606 for credit, provided the subject matter is different.

ARTE 608 Topics in Studio Inquiry (3 credits)

Description:
In this course students identify the content and the processes essential to their on-going studio performance. Students are expected to develop parallel inquiry into exhibitions, installations, performances, documentations, notation systems and related readings. Evaluation is based on workshop and seminar participation, studio performance and class presentations. Computer access and shared

studio space are available.

Component(s):
Studio; Laboratory

Notes:

- Students enrol in this course if they wish to repeat ARTE 607 for credit, provided the subject matter is different.

ARTE 609 Topics in Studio Inquiry (3 credits)

Description:
: In this course students identify the content and the processes essential to their on-going studio performance. Students are expected to develop parallel inquiry into exhibitions, installations, performances, documentations, notation systems and related readings. Evaluation is based on workshop and seminar participation, studio performance and class presentations. Computer access and shared studio space are available.

Component(s):
Studio; Laboratory

Notes:

- Students enrol in this course if they wish to repeat ARTE 608 for credit, provided the subject matter is different.

ARTE 610 Topics in Studio Inquiry (3 credits)

Description:
In this course students identify the content and the processes essential to their on-going studio performance. Students are expected to develop parallel inquiry into exhibitions, installations, performances, documentations, notation systems and related readings. Evaluation is based on workshop and seminar participation, studio performance and class presentations. Computer access and shared studio space are available.

Component(s):
Studio; Laboratory

Notes:

- Students enrol in this course if they wish to repeat ARTE 609 for credit, provided the subject matter is different.

ARTE 611 Topics in Studio Inquiry (3 credits)

Description:
In this course students identify the content and the processes essential to their on-going studio performance. Students are expected to

develop parallel inquiry into exhibitions, installations, performances, documentations, notation systems and related readings. Evaluation is based on workshop and seminar participation, studio performance and class presentations. Computer access and shared studio space are available.

Component(s):
Studio; Laboratory

Notes:

- Students enrol in this course if they wish to repeat ARTE 610 for credit, provided the subject matters is different.

ARTE 660 Selected Topics in Art Education (3 credits)

Description:
A seminar course offering students the opportunity to study various aspects of art education. Specific topics vary from year to year to take advantage of the special expertise of the faculty.

Component(s):
Lecture; Seminar

ARTE 664 Independent Study (3 credits)

Component(s):
Independent Study

ARTE 665 Independent Study (3 credits)

Component(s):
Independent Study

ARTE 670 Critical Perspectives on Art Education History: History, Theory and Practice (3 credits)

Description:
A seminar course in which students develop critical reading and writing skills while adding to their understanding of developments past and present that have shaped the field of art education.

Component(s):
Seminar

ARTE 672 Advanced Critical Analysis (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ARTE 670.

Description:
A seminar course in which students develop advanced skills in critical analysis, academic writing and library research. Assignments include compiling and writing a review of literature on a topic of research or professional interest.

Component(s):
Seminar

ARTE 680 Foundations for Inquiry (3 credits)

Description:
A seminar course in which students are introduced to the basic concepts, terminology, and contexts of inquiry in art education. Students learn about the practice of systematic inquiry, including: identifying and articulating a topic or question; situating the inquiry within a theoretical framework; relating the inquiry to art education practices; and selecting appropriate inquiry procedures. Each student develops a proposal for a small-scale project related to his/her particular art education interests.

Component(s):
Seminar

ARTE 682 Research Practice (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ARTE 680.

Description:
A seminar course in which students conduct a small-scale research project based on their own research proposal. Students are introduced to appropriate forms and practices for conducting the project and presenting the results.

Component(s):
Seminar

ARTE 698 Thesis (24 credits)

Description:
The thesis topic is chosen in consultation with the thesis supervisor, and is approved by the thesis advisory committee. Students produce a thesis proposal; conduct the proposed inquiry; produce the thesis; and present it orally to their thesis advisory committee. Scholarly Thesis: Students develop a research based scholarly thesis in consultation with the faculty supervisor. The thesis is a

minimum of 20,000 words and must address a research question or problem through an empirical or philosophical investigation. The thesis must include a discussion that documents the student's reflections upon the methods and procedures employed, and the actual findings that resulted from an examination of the problem. The thesis culminates in a discussion of its implications for art education theory and/or practice. The thesis is presented to the advisory committee for evaluation, and for defence in an oral examination. Studio-based Thesis: Students develop a cohesive body of artwork for presentation and a minimum 10,000 word written thesis component comprising a review of literature and other relevant resources, a theoretical and methodological contextualization, a critical reflection on the project and its outcomes, a linking of art making with art education and other areas of analysis as deemed necessary by the student and the student's advisory committee. The artwork and text, together comprising the thesis, are presented to the advisory committee. Evaluation includes an oral examination on both components. Teaching-based Thesis: Students organize and conduct a professional teaching project, develop a teaching dossier, and write a thesis text directly related to art education, with the guidance of the faculty supervisor. The project may be carried out on site in an educational setting or institution. In the written component of the thesis (minimum10,000 words) students document, analyze and evaluate the project, presenting a literature review, a theoretical and methodological contextualization, and a critical reflection on the project and its outcomes. Evaluation includes an oral examination on this text, on the teaching portfolio, and on the outcomes of the project. Guidelines for the thesis are described in Thesis Preparation Guide available from the School of Graduate Studies and Art Education's Master of Arts Thesis Procedures available from the department's programs office.

Component(s):
Thesis Research

Art Education PhD Courses

Elective course offerings change from year to year in light of the interests of students and faculty. In any session only those courses will be given for which there is sufficient demand.

ARTE 806 Inquiry Through Art Production (3 credits)

Description:
In this course students identify the content and the processes essential to their on-going studio performance. Students are expected to develop parallel inquiry into exhibitions, installations, performances, documentations, notation systems and related readings. Evaluation is based on workshop and seminar participation, studio performance and class presentations. Computer access and shared studio space are available.

Component(s):
Studio; Laboratory

Notes:

- This course may be repeated as ARTE 807.

ARTE 850 Selected Topics in Art Education (3 credits)

Description:
A seminar course offering students the opportunity to study various aspects of art education. Specific topics vary from year to year to take advantage of the special expertise of the faculty.

Component(s):

Lecture

ARTE 807 Inquiry Through Art Production (3 credits)

Description:
In this course students identify the content and the processes essential to their on-going studio performance. Students are expected to develop parallel inquiry into exhibitions, installations, performances, documentations, notation systems and related readings. Evaluation is based on workshop and seminar participation, studio performance and class presentations. Computer access and shared studio space are available.

Component(s):
Studio; Laboratory

ARTE 867 Directed Studies in Art Education I (3 credits)

Description:
Independent study in the area of concentration.

Component(s):
Independent Study

ARTE 868 Directed Studies in Art Education II (3 credits)

Description:
Independent study in the area of concentration.

Component(s):
Independent Study

ARTE 870 Critical Perspectives on Art Education: History, Theory and Practice (3 credits)

Description:
A seminar course in which students develop critical reading and writing skills while adding to their understanding of developments past and present that have shaped the field of art education.

Component(s):
Seminar

ARTE 872 Advanced Critical Analysis (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ARTE 870.

Description:
A seminar course in which students develop advanced skills in critical analysis, academic writing and library research. Assignments include compiling and writing a review of literature related to thesis research. Students develop questions related to their area of research and professional interest to be used on their PhD comprehensive examination.

Component(s):
Seminar

ARTE 880 Foundations for Inquiry (3 credits)

Description:
This seminar course introduces students to the basic concepts, terminology, and contexts of inquiry in art education. Students learn about the practice of systematic inquiry, including: identifying and articulating a topic or question; situating the inquiry within a theoretical framework; relating the inquiry to art education practices; and selecting appropriate inquiry procedures. Each student develops a proposal for a small-scale project related to their particular art education interests.

Component(s):
Seminar

ARTE 882 Research Practice (3 credits)

Description:
A seminar course in which students conduct a small scale research project based on their own research proposal.

Component(s):
Seminar

ARTE 883 Comprehensive Examination (0 credits)

Prerequisite/Corequisite:
Students must complete a minimum of 21 course credits prior to enrolling.

Description:
Each student must pass a comprehensive examination composed of written and oral components. The examination assesses the student's competence in the field of Art Education. The student must pass this exam in order to continue in the program. A Student Guide to the Comprehensive Examination gives detailed information on the exam and is available from the department's graduate programs office. Generally, one examination time is established each year, usually at the end of the winter term.

Component(s):
Thesis Research

ARTE 884 Doctoral Seminar (3 credits)

Description:
This course addresses research and communication, thesis writing, and professional practice.

Component(s):
Seminar

ARTE 890 Research and Thesis (63 credits)

Description:
Includes thesis proposal and its approval by the Thesis Advisory Committee, research (including any further study that may be required to gain needed expertise), written thesis and oral examination. A doctoral thesis is expected to make an original contribution to knowledge in the field of art education, and to be written in acceptable scholarly form. Students are encouraged to periodically present their research-in-progress to academic and professional audiences. For details on thesis procedures and format, see the relevant sections of this calendar and the Thesis Preparation Guide available from the School of Graduate Studies. In addition, Art Education Procedures for Doctoral Theses is available in the department's graduate programs office.

Component(s):
Thesis Research

Art History Courses

Art History MA Courses

Each year the Department of Art History will offer a selection of courses from those listed below. A list of those courses, as well as information as to the specific content of seminar offerings, is available on the Department of Art History website.

ARTH 611 Landscapes and Built Environments (3 credits)

Description:
This seminar is concerned with built environments and aspects of natural/cultural landscapes.

Component(s):
Seminar

ARTH 613 Indigenous Art and Art History (3 credits)

Description:
This seminar focuses on the evolving arts practices of Indigenous peoples, including themes of collection, exhibition, historical continuity, and power relations.

Component(s):
Seminar

ARTH 614 Craft Studies: Theory and Practice (3 credits)

Description:
This seminar explores issues in the theory and practice of craft studies.

Component(s):
Seminar

ARTH 615 Postcolonial and Decolonizing Practices in Art and Visual Culture (3 credits)

Description:
This seminar considers postcolonial and decolonizing themes, theories and methodologies as these pertain to art and visual culture.

Component(s):
Seminar

ARTH 627 Feminisms and Art History (3 credits)

Description:
This seminar explores various forms of feminist history, theory and activism on the production and reception of art and architecture.

Component(s):
Seminar

ARTH 635 Art and Art History in Canada and Quebec (3 credits)

Description:
This seminar focuses on aspects of art and art history in Canada and Quebec.

Component(s):
Seminar

ARTH 639 Architectural History, Theory and Criticism (3 credits)

Description:
This seminar focuses on the history, theory and criticism of architecture.

Component(s):
Seminar

ARTH 640 Photography History and Theory (3 credits)

Description:
This seminar explores various aspects of photography history and theory.

Component(s):
Seminar

ARTH 641 Issues in Visual and Material Culture (3 credits)

Description:
This seminar investigates practices, theories, and methodologies related to material culture.

Component(s):

Seminar

ARTH 642 Media and New Media (3 credits)

Description:
This seminar explores how artistic practices intersect with the history and theory of media and technology.

Component(s):
Seminar

ARTH 643 Art and Globalization (3 credits)

Description:
This seminar considers how art negotiates questions of globalization, diaspora, and transnationalism.

Component(s):
Seminar

ARTH 647 Independent Studies in Art History (3 credits)

Description:
This course allows students to work closely with an individual professor, on a research topic not covered by the program's seminars.

Component(s):
Seminar

ARTH 648 Museum Studies (3 credits)

Description:
This seminar focuses on the history of museums, museological theories, and institutional critique.

Component(s):
Seminar

ARTH 649 Curatorial Studies: Theory and Practice (3 credits)

Description:
This seminar is dedicated to curatorial knowledge, theories, skills and practices.

Component(s):
Seminar

ARTH 650 Supervised Internship (3 credits)

Description:
Students undertake an internship at an arts organization and perform concrete tasks designed to enhance their learning through practical experience (e.g. curating an exhibition, writing a catalogue essay, editing a publication, organizing a speakers' series) and also reflect on that experience. Students have an academic supervisor as well as on-site supervision. The internship involves 150 hours of work and is approved by the academic supervisor and the graduate program director, who ensure that the tasks, learning objectives and assessments are consistent with the objectives of the MA program.

Component(s):
Practicum/Internship/Work Term

ARTH 654 Annotated Review of Sources and Documents (3 credits)

Description:
Students take this individualized study course with their supervisor, normally in the summer term following the first year of study. This course must be completed before students begin writing their thesis. Supervisor and students meet to determine the list of scholarly texts and/or archival materials to be addressed in order to strengthen the students' foundational knowledge of their designated research field and prepare them for writing the thesis. The students are responsible for a series of annotations, together with an essay that synthesizes the annotated material (total word count approximately 6000 words).

Component(s):
Thesis Research

ARTH 655 Thesis Seminar (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ARTH 654.

Description:
This course is designed to introduce students to the intellectual and professional aspects of graduate school and academia, such as writing a thesis, conducting research, engaging with art historical theory and methodologies, giving a conference paper, applying for grants.

Component(s):
Seminar; Thesis Research

Notes:

- Credit for this pass/fail seminar is accorded once the students have delivered their thesis presentation during the second year of

the program.

ARTH 656 Thesis (24 credits)

Description:
Each student submits a thesis of 13,000 - 15,000 words (excluding notes, bibliography and other supporting materials), prepared under the supervision of a tenured or tenure-track professor in the Department of Art History who examines the thesis along with one other professor.

Component(s):
Thesis Research

ARTH 6600 The Social Contexts of Art and Architecture (3 credits)

Description:
This seminar explores the social contexts of selected artistic/architectural themes, movements, and periods.

ARTH 6610 Art History and Black Studies (3 credits)

Description:
This seminar considers art and art history from Black Studies perspectives.

ARTH 6620 Gender and Sexuality in Art and Architecture (3 credits)

Description:
This seminar explores aspects of gender and sexuality in relation to histories of art and architecture.

ARTH 663 Art History and Social Justice (3 credits)

Description:
This seminar investigates how questions of social justice intersect with art and visual culture.

ARTH 664 Visual Culture (3 credits)

Description:
This seminar is concerned with aspects of visual culture, including theories of visuality and various modes of visual production.

ARTH 665 Histories and Theories of Design (3 credits)

Description:
This seminar explores histories and theories of design.

ARTH 667 Art History, Religion and Spirituality (3 credits)

Description:
This seminar considers the formative role of spirituality and religious practices on art making and architectural practice.

ARTH 668 Theories and Methodologies in Art History (3 credits)

Description:
This seminar addresses various methodological approaches and theories relevant to art history.

Art History PhD Courses

Block A Seminars: Methodology

ARTH 809 A1: Art History and Its Methodologies (3 credits)

Description:
Students reflect critically on the theoretical and methodological foundations of current art historical practice. This seminar is offered in English.

Component(s):
Seminar

Notes:

- The language of discussion in Block A seminars is the same as the language of instruction, with the understanding that students may express complex ideas in the program's other language.
- Students who have received credit for ARTH 800 may not take this course for credit.

ARTH 810 A2: Problématiques de l'histoire de l'art (3 credits)

Description:
Analyse des bases théoriques de la discipline et réflexion critique sur les questionnements actuels des diverses méthodologies appliquées l'étude des oeuvres d'art.

Component(s):
Seminar

Notes:

- The language of discussion in Block A seminars is the same as the language of instruction, with the understanding that students may express complex ideas in the program's other language.
- Students who have received credit for ARTH 800 may not take this course for credit.

Block B Seminars: Art History and Its Object

ARTH 801 B1: Periods and Territories (3 credits)

Component(s):
Seminar

Notes:

- Instructors determine the language or languages of instruction and discussion for Block B seminars.

ARTH 802 B2: Classification - Genres, Artistic Disciplines (3 credits)

Component(s):
Seminar

Notes:

- Instructors determine the language or languages of instruction and discussion for Block B seminars.

ARTH 803 B3: Thematic Questions (3 credits)

Component(s):
Seminar

Notes:

- Instructors determine the language or languages of instruction and discussion for Block B seminars.

ARTH 804 B4: Writings on Art (3 credits)

Component(s):
Seminar

Notes:

- Instructors determine the language or languages of instruction and discussion for Block B seminars.

ARTH 805 B5: Critical Examination of Artistic Context (3 credits)

Component(s):
Seminar

Notes:

- Instructors determine the language or languages of instruction and discussion for Block B seminars.

ARTH 806 B6: Formal and Semantic Studies (3 credits)

Component(s):
Seminar

Notes:

- Instructors determine the language or languages of instruction and discussion for Block B seminars.

Comprehensive Examination, Research and Thesis Courses

ARTH 807 Doctoral Forum (3 credits)

Description:

In the interests of promoting the development of an intellectual community within the program, a forum consisting of professors and students in the program is held twice a year. Each student, at some point during their degree, must give a paper based on their thesis research.

Notes:

- This paper will be evaluated by a committee consisting of three professors and accorded a pass or fail grade. The doctoral forum is bilingual, with translation provided when necessary.

ARTH 808 Comprehensive Examinations (9 credits)

Description:

Each student must successfully complete one oral and one written examination, which are evaluated by the three professors constituting the student's thesis committee. These examinations are based on a pre-established list of readings focused on the theoretical and methodological issues which inform the student's specific area of research. The exams are intended to verify whether the student is sufficiently prepared to undertake the writing of a thesis. Students determine the language or languages for the examinations.

Component(s):

Thesis Research

Notes:

- Students who fail these examinations must take them a second time during the following semester. Those failing the second attempt will be withdrawn from the program.

ARTH 820 Research Tutorial (6 credits)

Description:

This tutorial is directed by the thesis advisor and is oriented to the student's thesis topic. Its objective is to allow the student to articulate a detailed research project, define its corpus, and develop its theoretical and methodological hypotheses with a view to obtaining the approval of the thesis committee.

Notes:

- This project, including an activity calendar, must be submitted at the end of the student's first year. Students should register once work is completed and a grade has been assigned.

ARTH 830 Thesis (60 credits)

Description:

The doctoral candidate must submit a thesis which makes an important and original contribution to knowledge in Art History. The thesis is defended orally before a committee composed of five individuals: the thesis advisor, the two other members of the thesis committee,

one examiner from a department or program within the university other than the candidate's, and one external examiner from outside the four universities.

Component(s):

Thesis Research

Creative Arts Therapies Courses

CATS Courses

CATS 609 Introduction to Dance/Movement Therapy (3 credits)

Description:

This course provides an introduction to the foundations and primary concepts of dance/movement therapy and explores their relevance and applications to other creative arts therapies modalities through experiential, somatic, and theoretical approaches.

CATS 610 Introduction to Topics in Clinical Psychology for Creative Arts Therapists (3 credits)

Description:

This seminar introduces creative arts therapists to the various psychopathologies, their symptomatologies, etiologies, current Diagnostic and Statistical Manual (DSM) diagnostic criteria, and treatments.

Notes:

- Credit received for CATS 610 cannot be applied towards a graduate program in Psychology.

CATS 611 Counselling Skills for Creative Arts Therapists (3 credits)

Description:

This course introduces basic skills and practices of counselling and psychotherapy for creative arts therapists. It provides the opportunity to explore, develop, and practice the skills required for effective therapeutic interventions across varied theoretical orientations and treatment approaches. The course focuses on the therapeutic relationship and the therapeutic frame.

CATS 615 Independent Practicum in the Creative Arts Therapies (3 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: ATRP 613; ATRP 614. Permission of the Department is required.

Description:

With the Department's approval and in agreement with a faculty supervisor, additional practicum experience is offered on an individual basis to students in special circumstances. A case study is required.

CATS 631 Selected Issues in the Creative Arts Therapies (3 credits)

Notes:

- This course may be repeated as CATS 631B, 631C, etc.

CATS 636 Independent Studies in Creative Arts Therapies (3 credits)

Notes:

- This course may be repeated as CATS 637.

CATS 638 Creative Process in Clinical Practice for Creative Arts Therapists (3 credits)

Description:

This course provides experiential learning in the clinical application of creative projection techniques through a methodology based on exploring character in myth and fairy tale. The creative process is examined through readings, discussions, masks, movement, music and drama.

CATS 639 Interdisciplinary Topics: Cross-cultural Competence in the Creative Arts Therapies (1 credits)

Description:

This course presents cross-cultural competence as an ethical obligation, providing an overview of multi-cultural counselling theory. Students explore challenges and opportunities arising in creative arts therapies clinical practice within an environment of cultural diversity as it relates to both the therapist and the client.

Notes:

- This course is marked on a pass/fail basis.

CATS 640 Studio Media and Practice for Creative Arts Therapists (3 credits)

Description:

Students develop skills with a variety of studio media and processes in their own creative arts discipline, while experiencing the media and creative process of an allied discipline. Commonalities and factors unique to each are examined for their potential in interdisciplinary practice.

CATS 641 Interdisciplinary Topics: Ethics in Clinical Practice in the Creative Arts Therapies (1 credits)

Description:

This course covers ethical standards and requirements for clinical practice as established by both professional mental health and creative arts therapies associations. Students become familiar with expectations of professional and personal conduct as well as models for ethical decision-making. Students also gain an understanding of their personal value systems in relation to their work as creative arts therapists and how those values may inform ethical decision-making within their clinical practice.

Notes:

- This course is marked on a pass/fail basis.

CATS 643 Interdisciplinary Topics: Ethics in Research in the Creative Arts Therapies (1 credits)

Description:

This course covers ethical standards and requirements for research as established by both professional mental health and creative arts therapies associations. Students become familiar with expectations of professional and personal conduct with respect to research in the field, including research protocols for both the Department of Creative Arts Therapies and Concordia University.

Notes:

- This course is marked on a pass/fail basis.

CATS 645 Family Systems and the Creative Arts Therapies (3 credits)

Description:

Family systems theory is introduced and specific theories and practices of family therapy are considered. Indications for the use of family therapy and its integration with the creative arts therapies are explored, as are specific methods of assessment and intervention.

CATS 689 Research Paper (9 credits)

Prerequisite/Corequisite:

The following course must be completed previously: CATS 691. Students develop their proposals for this paper as a course requirement for CATS 691, to be submitted for approval to the Research and Ethics Committee in the winter term of their first year in the program.

Description:

The research paper is the formal culmination of graduate studies in the creative arts therapies. This paper includes a literature review, and may also include methodology, specific procedures, research population or sample, data collection and analysis, as appropriate to the topic approved by the Creative Arts Therapies Research and Ethics Committee. The Committee will then assign one faculty member in the Department to supervise each paper.

Notes:

- The nine-credit component appears on the student record only once the final version of the research paper has been submitted to the Thesis Office and the Graduate Grade Activity Report Form, granting a grade of PASS, has been submitted to the Office of the Registrar.

CATS 691 Research in the Creative Arts Therapies (3 credits)

Description:

This course presents an overview of qualitative research, theory and methodology, and their application to the creative arts therapies. Students develop critical reading skills and explore ethical issues involved in research.

CATS 698 Applied Research Project with Report (6 credits)

Description:

The student chooses this option to further explore specific pilot project reports, feasibility studies, creative research designs utilizing media intrinsic to the creative arts therapies, or to undertake research with artistic, photographic or video documentation relevant to the creative arts therapies. All applied projects must include a written component and be presented as a public seminar upon completion.

CATS 699 Comprehensive Exam (3 credits)

Description:

An oral/written comprehensive case study examination must be taken to demonstrate integrative aspects of learning and knowledge in the study of drama therapy or art therapy.

Component(s):

Thesis Research

Art Therapy Courses

ATRP 600 Readings in Art Therapy (3 credits)

Description:

This course provides grounding in significant schools of psychological thought and their relevance to art therapy. It also promotes advanced knowledge and understanding of the therapeutic relationship and process from a psychodynamic perspective. Studied psychotherapeutic models include: psychodynamic, object relations, humanistic, cognitive-behavioural, as well as theories of trauma.

ATRP 602 Assessment Techniques in Art Therapy (3 credits)

Description:

This course emphasizes an understanding and experience of the purpose and process of various assessments in art therapy. The

theory and practice of art therapy assessment in both clinical work and research are reviewed within the context of different populations.

ATRP 603 Symbolic Imagery and Art Therapy - Studio/Workshop (3 credits)

Description:

Through experiential art workshops and readings, symbols and the symbolic/metaphoric function are examined with reference to various psychological models, including Freudian psychoanalysis, Jungian analytical psychology and Hillman's archetypal/imaginal psychology. Students develop an understanding of art therapy methodology by exploring personal imagery.

ATRP 604 Group and Family Art Therapy (3 credits)

Description:

This course provides a dialectical, experiential and practical examination of the major approaches to group dynamics, including psychodynamic, humanistic, systemic, and theories of communication. Stages, theories and clinical applications of group art therapy processes are explored.

ATRP 613 Art Therapy Practicum Supervision I (3 credits)

Description:

In this course, students acquire skills in the implementation of the principles of psychotherapy within the practices of art therapy with a selected population. Students learn observation and assessment procedures, treatment planning, skills in establishing and maintaining the therapeutic relationship, on-going evaluation, methods of clinical documentation, and professional reporting in multidisciplinary teams. Individual and group supervision are provided. A minimum of 150 practicum hours is required.

Component(s):

Practicum/Internship/Work Term

ATRP 614 Art Therapy Practicum Supervision II (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: ATRP 613.

Description:

This course is a continuation of ATRP 613. A minimum of 200 practicum hours is required.

Component(s):

Practicum/Internship/Work Term

ATRP 620 Art Therapy Advanced Clinical Skills (3 credits)

Description:
This course is designed to refine students' clinical skills and deepen understanding of the practice of art therapy from a psychodynamic perspective. Through role-play experience and clinical discussion in a seminar format, therapeutic issues which students encounter during their fieldwork are explored.

ATRP 623 Advanced Art Therapy Practicum Supervision I (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ATRP 613 and ATRP 614.

Description:
This course is designed to promote the consolidation of students' abilities in the practice of art therapy, to further develop clinical skills, and deepen psychotherapeutic understanding. Individual and group supervision are provided. Case presentations, readings and clinical analysis of therapeutic issues are integral to this course. A minimum of 200 practicum hours is required.

Component(s):
Practicum/Internship/Work Term

ATRP 624 Advanced Art Therapy Practicum Supervision II (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ATRP 613; ATRP 614; ATRP 623.

Description:
This course is a continuation of ATRP 623. A minimum of 250 practicum hours is required.

Component(s):
Practicum/Internship/Work Term

ATRP 630 Child and Adolescent Art Therapy (3 credits)

Description:
This course promotes an understanding of the theory and practice of art therapy with children and adolescents. Clinical applications of art therapy within diverse child and adolescent populations are examined with reference to the systemic, psychodynamic and cognitive models. Appropriate use of artistic media and play techniques are studied.

ATRP 693 Research in Art Therapy (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: CATS 691.

Description:

This course is designed to foster the acquisition of knowledge and methodological tools in arts-based, qualitative and quantitative methods relevant to the field of art therapy. Emphasis is placed on the use of the practical tools necessary to conduct reliable and valid research.

Drama Therapy Courses

DTHY 600 Current Approaches to Drama Therapy (3 credits)

Description:

This course provides grounding in significant theoretical theories of drama therapy and correlating schools of psychological thought and their relevance to drama therapy. It also promotes advanced knowledge and understanding of the therapeutic relationship and process from several drama therapy, psychodynamic, and psychotherapeutic perspectives. Studied psychotherapeutic models include: psychodynamic, object relations, humanistic, cognitive-behavioural, as well as theories of trauma. Drama therapy models include: role theory, projective techniques, therapeutic theatre, the use of story, and performance techniques.

DTHY 603 Improvisation and Drama Therapy - Studio/Workshop (3 credits)

Description:

This course focuses on developing skills in adapting methods of dramatic improvisation for the purpose of therapy, including exploration of projective, playback and psychodramatic techniques. Attention is given to the theory of distancing in terms of therapeutic process and dramatic form.

DTHY 604 Drama Therapy and Groups (3 credits)

Description:

This course provides a dialectical, experiential and practical examination of the major approaches to group dynamics, including psychodynamic, humanistic, systemic, and theories of communication. Stages, theories and clinical applications of group drama therapy processes are explored.

DTHY 613 Drama Therapy Practicum Supervision I (3 credits)

Description:

In this course, students acquire skills in the implementation of the principles of psychotherapy within the practices of drama therapy

with a selected population. Students learn observation and assessment procedures, treatment planning, skills in establishing and maintaining the therapeutic relationship, on-going evaluation, methods of clinical documentation, and professional reporting in multidisciplinary teams. Individual and group supervision are provided. A minimum of 150 practicum hours is required.

Component(s):
Practicum/Internship/Work Term

DTHY 614 Drama Therapy Practicum Supervision II (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: DTHY 613.

Description:
This course is a continuation of DTHY 613. A minimum of 200 practicum hours is required.

Component(s):
Practicum/Internship/Work Term

DTHY 623 Advanced Drama Therapy Practicum Supervision I (3 credits)

Description:
This course is designed to promote the consolidation of students' abilities in the practice of drama therapy, to further develop clinical skills, and deepen psychotherapeutic understanding. Individual and group supervision are provided. Case presentations, readings and clinical analysis of therapeutic issues are integral to this course. A minimum of 200 practicum hours is required.

Component(s):
Practicum/Internship/Work Term

DTHY 624 Advanced Drama Therapy Practicum Supervision II (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: DTHY 613; DTHY 614; DTHY 623.

Description:
This course is a continuation of DTHY 623. A minimum of 250 practicum hours is required.

Component(s):
Practicum/Internship/Work Term

DTHY 643 Sociodrama and Psychodrama (3 credits)

Description:
Sociodrama and psychodrama practices are examined for their use as treatment modalities in drama therapy. Seminars and experiential methods of instruction integrate their practice into the aims and principles of drama therapy.

DTHY 644 Child and Adolescent Drama Therapy (3 credits)

Description:
This course focuses on the methodologies, processes, and assessment techniques as they relate to drama therapy, play and play therapy with children and adolescents, and their families.

DTHY 645 Assessment in Drama Therapy (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: DTHY 644.

Description:
This course explores assessment tools developed in the field of drama therapy, including those based on such dramatic media as storytelling, role-plays, puppets and masks. The theory and practice of drama therapy assessment in both clinical work and research are reviewed within the context of different populations.

DTHY 693 Research in Drama Therapy (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: CATS 691.

Description:
This course is designed to foster the acquisition of knowledge and methodological tools in arts-based, qualitative and quantitative methods relevant to the field of drama therapy. Emphasis is placed on the use of the practical tools necessary to conduct reliable and valid research.

Music Therapy Courses

Music Therapy Graduate Diploma Courses

MTHY 501 Music Therapy Skills (3 credits)

Description:

This course introduces students to basic materials, methods, and skills used to engage people in music therapy. These include improvisation, performance, leadership, group management, and appropriate repertoire/materials development for various ages and populations. Participation in varied experiences include, but are not limited to, vocal and instrumental improvisation, drumming circles, movement, melodic instruments, assistive technology, integrated arts, and songwriting.

MTHY 502 Psychology of Music (2 credits)

Description:

This course provides an introduction to phenomena involving music and human behaviour, including physical, acoustical, perceptual, psychological, neuropsychological, and pedagogical aspects.

MTHY 503 Music Therapy with Adults (1 credits)

Description:

This course provides in depth coverage of music therapy clinical practice with diverse adult populations. This includes assessment techniques, intervention methods and strategies, improvisation, counselling skills, and an overview of the various populations.

MTHY 504 Music Therapy with Children and Adolescents (1 credits)

Description:

This course provides in depth coverage of music therapy clinical practice with diverse child and adolescent populations. This includes assessment techniques, intervention methods and strategies, improvisation, and an overview of the various populations.

MTHY 510 Music Therapy Practicum I (3 credits)

Prerequisite/Corequisite:
The following course must be completed concurrently: MTHY 503.

Description:
This practicum course with adults is one in a series of practica that cumulatively fulfills the requirements of the 200-hour preclinical and the 1,000-hour supervised clinical internship requirements, as stipulated by the professional program approval associations (the Canadian Association for Music Therapy and the American Music Therapy Association). Students develop as professional music therapists within a social, political and cultural context. Students acquire skills in the implementation of the principles and practices of music therapy within adult populations, including observation and assessment procedures, treatment planning, evaluation, and reporting in multi-disciplinary team settings. Students have the opportunity to explore, develop, and integrate academic and practical knowledge and skills within a clinical setting. A minimum of 300 practicum hours is required.

Component(s):
Practicum/Internship/Work Term

MTHY 511 Music Therapy Practicum II (3 credits)

Prerequisite/Corequisite:
The following course must be completed concurrently: MTHY 504.

Description:
This practicum course within children and adolescent populations is one in a series of practica that cumulatively fulfills the requirements of the 200-hour pre-clinical and the 1,000-hour supervised clinical internship requirements, as stipulated by the professional program approval associations (the Canadian Association for Music Therapy and the American Music Therapy Association). Students develop as professional music therapists within a social, political and cultural context. Students acquire skills in the implementation of the principles and practices of music therapy within child and adolescent populations, including observation and assessment procedures, treatment planning, evaluation, and reporting in multi-disciplinary team settings. Students have the opportunity to explore, develop, and integrate academic and practical knowledge and skills within a clinical setting. A minimum of 300 practicum hours is required.

Component(s):
Practicum/Internship/Work Term

MTHY 512 Music Therapy Practicum III (9 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MTHY 510 and MTHY 511.

Description:
This practicum course with diverse populations is the final in a series of practica that cumulatively fulfills the requirements of the 200-hour preclinical and the 1,000-hour supervised clinical internship requirements, as stipulated by the professional program approval associations (the Canadian Association for Music Therapy and the American Music Therapy Association). Students develop as

professional music therapists within a social, political and cultural context. With a greater focus on clinical work in this practicum, students have the opportunity to specialize in a clinical population of their choice, preparing for future careers and/or graduate studies in music therapy. A minimum of 600 practicum hours is required. Students are also required to attend classes which may be offered as weekend intensives.

Component(s):
Practicum/Internship/Work Term

MTHY 521 Clinical Improvisation in Music Therapy (3 credits)

Description:
This course explores the basic applications of clinical improvisation processes in therapy and assessment. The specific focus is determined by identified student strengths and needs, and may include Nordoff and Robbins techniques, advanced piano techniques, analytical music therapy, and others.

Music Therapy MA Courses

MTHY 600 Music Therapy Advanced Literature (3 credits)

Description:
In this course, students examine music therapy and related literature in order to deepen their understanding of the influences on their own clinical and conceptual work. Cultural, musical, and theoretical frameworks are analyzed; these include psychodynamic, humanistic, cognitive behavioural, and other frameworks. Emphasis is placed on the integration of theory and music therapy process, assessment, intervention, and evidence-based practice.

Component(s):
Online

MTHY 601 Music Therapy Supervision, Teaching, and Learning (3 credits)

Description:
Examination of current theories and practices in clinical music therapy supervision and in university teaching and learning. Through lectures, demonstrations, and applied practice, students develop the necessary advanced professional competencies for clinical supervision and for excellence in teaching and learning. Topics include, but are not limited to, learning styles, teaching strategies, infusion of technology in instruction, and the creation of effective learning communities.

Component(s):
Online

MTHY 602 Advanced Clinical Improvisation in Music Therapy I (1.5 credits)

Description:
This course explores the applications of clinical improvisation processes in therapy and assessment. The specific focus is determined by identified student strengths and needs, and may include Nordoff and Robbins techniques; advanced piano techniques; analytical music therapy; and others.

Component(s):
Online

MTHY 603 Advanced Clinical Improvisation in Music Therapy II (1.5 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MTHY 602, or equivalent.

Description:
Advanced study in clinical improvisation techniques in music therapy. The specific focus is determined by the identified student experience, strengths, and needs, and may include Nordoff and Robbins techniques; advanced piano and vocal techniques; analytical music therapy; and others.

Component(s):
Online

MTHY 623 Advanced Music Therapy Practicum I (3 credits)

Description:
This course offers advanced clinical experience in the students' areas of specialization. Close individual and group supervision for students are provided. Case presentations, readings, discussion of ethical issues related to students' work are integral to this course.

Component(s):
Practicum/Internship/Work Term; Online

MTHY 624 Advanced Music Therapy Practicum II (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MTHY 623.

Description:
This course provides further advanced clinical experience in students' areas of specialization. Close individual and group supervision for students are provided. Case presentations, readings, discussion of ethical issues related to students' work are integral to this course.

Component(s):
Practicum/Internship/Work Term; Online

MTHY 625 Guided Imagery and Music, Level I (3 credits)

Description:
This course introduces students to the Guided Imagery and Music method (GIM) through demonstrations, theoretical discussion and personal experiences. Specific topics covered include: the role of music in GIM, relaxation techniques, types of imagery and basic guiding techniques, and the implementation of GIM in assessment. This course is graded on a Pass/Fail basis.

MTHY 633 Advanced Music Therapy Practice I (6 credits)

Description:
This course offers advanced clinical experience in the students' areas of specialization, with a required minimum of 100 placement hours. Close individual and group supervision for students are provided. Case presentations, readings, discussion of ethical issues related to students' work are integral to this course.

Component(s):
Practicum/Internship/Work Term; Online

MTHY 634 Advanced Music Therapy Practice II (6 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MTHY 633.

Description:
This course provides further advanced clinical experience in students' areas of specialization, with a required minimum of 100 placement hours. Close individual and group supervision for students are provided. Case presentations, readings, discussion of ethical issues related to students' work are integral to this course. As part of this capstone course in the Advanced Music Therapy Practice option, students complete a public presentation which reflects a major integration of their practical work.

Component(s):
Practicum/Internship/Work Term; Online

MTHY 693 Research in Music Therapy: Qualitative and Quantitative Methods (3 credits)

Description:
This course is designed to foster the acquisition of knowledge and methodological tools in qualitative and quantitative methods relevant to the field of Music Therapy. Particular emphasis is placed on acquisition of the practical tools necessary to conduct reliable and valid research to prepare students for the development of future research papers/projects in Music Therapy.

Component(s):
Online

MTHY 698 Music Therapy Advanced Capstone Project (6 credits)

Description:

This course involves completing an advanced capstone project on an approved topic directly related to the discipline, profession, and/or practice of music therapy. With guidance from faculty members within the context of relevant core courses, students produce a paper and culminating presentation that reflects a deep and applied understanding of the topic.

Notes:

- This course is marked on a pass/fail basis.

MTHY 699 Thesis (21 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: CATS 691 and MTHY 693.

Description:

The thesis topic is chosen in consultation with the thesis supervisor, and is approved by the thesis advisory committee. Students conduct an inquiry, produce the thesis, and present it orally to their thesis advisory committee. Guidelines for the thesis are described in Thesis Preparation and Thesis Examination Regulations available from the School of Graduate Studies and the Research Handbook of the Creative Arts Therapies Department.

Component(s):

Thesis Research

Play Therapy Graduate Certificate Courses

PLTH 501 Play Therapy 1 Introduction to Play Therapy (3 credits)

Description:

This course introduces the history, major models, and processes of play therapy. The basic model of child-centered play therapy, which evolved from the humanistic psychotherapy model, is explored through both theory and practice. Topics such as trauma, negative life experiences, the impact of these experiences on the brain and the child's development are introduced and will continue to be explored in other course material. This course introduces students to the four structures which contain a play therapy session. Evaluation and assessment in play therapy is addressed. The course covers common themes in play therapy acknowledging the cultural diversity of clients, record-keeping, preparation for the ending of the therapy relationship and the essential materials for an effective and culturally responsive playroom.

PLTH 502 Play Therapy 2 Cognitive Behavioural Child-Centered Play Therapy (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: PLTH 501.

Description:

This course focuses on the theories and techniques that inform cognitive behavioural therapy and their application in play therapy. Topics include the cognitive model and cognitive behavioual therapy assessment and evaluation, session structure, and directive interventions in play therapy.

PLTH 503 Play Therapy 3 Child-Centered Group Play Therapy (3 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: PLTH 501; PLTH 502.

Description:

This course emphasizes the philosophy and rationale for group work with children and pre-adolescents. Focus is on the goals of group therapy, the role of the play therapist, screening and selection of group members, play and activities at various developmental levels, and planning and structuring sessions. Building on PLTH 502, this course covers when to integrate cognitive behavioual therapy into child-centered group play therapy.

PLTH 504 Play Therapy 4 Relational Play Therapy and Filial Play Therapy (3 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: PLTH 501; PLTH 502; PLTH 503.

Description:

This course focuses on the history, theoretical foundations, research, and practical applications of relational and filial play therapy. In particular, students examine the techniques and models to work with parents including the Guerney, VanFleet and Landreth models based on attachment and self-regulation theories. Students learn techniques to support the attunement of parents to their children and facilitate a more secure attachment and the strengthening of family bonds.

PLTH 505 Play Therapy 5 Neurobiology and Attachment in Play Therapy (3 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: PLTH 501; PLTH 502; PLTH 503; PLTH 504.

Description:

This course covers neurobiological attachment theories within child-centered play therapy. This course focuses on understanding how trauma impacts neurological development and the treatment of trauma using child-centered play therapy.

Design Courses

Digital Technologies in Design Art Practice Graduate Certificate Courses

DART 500 Individual Research Project (6 credits)

Description:

Students will have the opportunity to research the application of digital design in one or two of the following areas of concentration, under the direction of a full-time faculty advisor. Design for Print Media: Student research projects will explore aspects of digitally-generated print media. Projects can be undertaken in experimental and applied image, in graphic design, typography, font exploration and generation, packaging book works and posters. Applied and Experimental 3D Object Making: Student research projects will involve the design of three-dimensional objects, space and environments. This design option integrates the learning of computer software for 3D modeling, rendering and animation programs, computer aided design (CAD), computer aided machining (CAM) programs for plotting, rapid prototyping for block and concept modeling and using a 3D scanner to measure existing objects for computer input. Interactive Media: Student research projects will investigate screen-based digital design and interactive systems. These will include websites, animation, the design of virtual spaces, interactive desktop presentations and visual navigation systems, the design and interface of virtual communities, distance learning and CD ROM based interactive educational and cultural projects, and web based national and international exchange opportunities. Inter-media and Hybrid Practice: Student research projects will focus on digital integration or hybrid practices including social design or art interventions, installations, exhibitions, compilation works that use cross-discipline means of expression, and include the integration of digital technology into the process or final production. Theoretical Investigations in Design Art: Student research projects will be used to investigate the theoretical constructs and discourse relating to the impact of digital technologies in art and design. This will also include the application of digital technologies for appropriate pedagogies and the development of innovative teaching methodology.

Component(s):

Lecture

DART 502 Language, Politics, Manifestos - Reading Seminar (3 credits)

Description:

The readings in this seminar will examine the ethical responsibilities, social impact, and cultural consequences of the new technologies in design art practice. The course will identify, situate and develop a language for dialogue and discourse. The issues considered will be on design ecology and ethics, gender polarization and biases, political strategies in the public sphere, and essential declarations of the digital era, in present and future technological environments.

Component(s):

Seminar

DART 503 Theories of Interactivity (3 credits)

Description:

This course will explore the new opportunities designers have to fundamentally change the ways in which information is organized, manipulated and disseminated in the context of new communications technologies. The computer, as a medium for expression, will be

explored through issues of cognition, metaphor, narrative structures, the creation of three dimensional objects and environments, symbolic interaction, information architecture and interactive visual navigational systems.

Component(s):
Lecture

DART 504 Contextualizing Design Practice (3 credits)

Description:
This course approaches design and digital technologies through interdisciplinary theoretical engagement to investigate the cultural and discursive context in which design resides. Through a combination of seminar discussions, workshops, and individual writings, students situate their work in different environments, such as commercial, public or domestic contexts, and explore new venues of dissemination. Such investigations enhance students' ability to contextualize, articulate and exhibit the thesis work.

Component(s):
Studio

DART 510 Independent Study (3 credits)

Prerequisite/Corequisite:
Written permission of the Graduate Program Director is required. Independent study proposals must be supported by a full-time faculty supervisor and approved with written permission by the Graduate Program Director.

Description:
The student undertakes research in a specific field or topic relevant to their area of study.

Component(s):
Studio

Design MDes Courses

DART 600 Design Theory/Practice I (3 credits)

Description:
This seminar develops a framework of practice-based and theoretical approaches that build the foundation of contemporary critical design practice and study. Drawing on examples and readings from a range of disciplines, students will explore design as a product, a practice, and a mode of social communication and investigate the cultural and discursive context in which design resides. The course will integrate the three program streams, namely visual communication, the built environment, and interaction design, and address the theme of sustainability as a timely concern for design practice.

Component(s):
Seminar

DART 601 Research Methods in Design (3 credits)

Description:
This course introduces students to a range of methodologies and strategies used to conduct research in design. Students will be exposed to the relationship that exists between research as a practice-based activity and research as theory-based inquiry and will have the opportunity to engage in the research process through studio work, writing, and presentations.

Component(s):
Seminar

DART 610 Design Theory/Practice II (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: DART 600 and DART 601.

Description:
Through a combination of studio work, seminar discussions, workshops, and individual writings, students situate their work in different contexts, such as commercial, public, or domestic environments, and explore new venues for dissemination. Such investigations enhance students' ability to contextualize, articulate, and exhibit the thesis work.

Component(s):
Seminar

DART 611 Interdisciplinary Practices in Design (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: DART 600 and DART 601.

Description:
This seminar examines the question of how knowledge is produced and transferred through interdisciplinary design and scholarly practices. Topics include socio-cultural, environmental and economic sustainability, participatory design, collaborative methods, communities of practice, epistemic cultures, embodiment, and knowledge production. Readings will be drawn from a broad range of disciplines.

Component(s):
Seminar

DART 620 Graduate Colloquium (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: DART 610 and DART 611.

Description:
The Graduate Colloquium will foster a community of practice and research by exposing the students to a diversity of work and methods and developing understanding of disciplinary commonalities and differences. Through this colloquium series, presentations by students will be augmented with presentations by faculty, visiting researchers, and practicing designers.

Component(s):
Seminar

DART 630 Special Topics in Sustainability (3 credits)

Description:
Topics may address a range of critical perspectives related to sustainability in terms of the environmental triad of ecological, socio-cultural and economic foci. Sustainable practice can refer to specific technical or scientific fields but also has a broader connotation towards integrative and enduring practices.

Component(s):
Seminar

DART 631 Special Topics in Visual Communication (3 credits)

Description:
Topics may address a range of critical perspectives related to the use of signs, icons, and visual symbols to convey ideas and communicate information. This includes graphic design, typography, illustration, and photography, as well as applications in information design, wayfinding, advertising, packaging, and electronic media.

Component(s):
Seminar

DART 632 Special Topics in the Built Environment (3 credits)

Description:
Topics may address a range of critical perspectives related to the structures, landscapes and spaces, both physical and virtual, in relation to the actions and activities that take place in them over time. This can include large-scale city planning, the design and conceptualization of living and workspaces, and the scale of object that are embedded in those spaces.

Component(s):
Seminar

DART 633 Special Topics in Interaction Design (3 credits)

Description:

Topics may address a range of critical perspectives related to the behaviour of an object or system in relation to its users or participants. Interaction design refers to design practices that embed electronics and computing capabilities into objects, materials, and devices, and it also describes the ways in which systems and processes produce form and structure over time.

Component(s):
Seminar

DART 634 Special Topics in Contemporary Indigenous Art and Design (3 credits)

Description:
Topics may address a range of critical perspectives on contemporary Indigenous art and design in terms of the aesthetic, political, and cultural issues such work illuminates. The course focuses on digital media but may encompass other forms of Indigenous creative practice, including visual arts, performance, and writing.

Component(s):
Seminar

DART 635 Special Topics in Design Research (3 credits)

Description:
Topics may address a range of critical perspectives relevant to the evolution of design research.

Component(s):
Studio

DART 651 Directed Study I (3 credits)

Prerequisite/Corequisite:
Students must have completed 9 credits in the Master of Design program prior to enrolling. A cumulative GPA of 3.70 or higher is required. Written permission of any faculty member of the Thesis Advisory Committee and the Graduate Program Director is required.

Description:
Students may enrol in a directed study under faculty supervision in order to undertake a specialized study of theoretical or research-creation related topics.

Component(s):
Seminar

DART 652 Directed Study II (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: DART 651. A cumulative GPA of 3.70 or higher is required. Written permission of any faculty member of the Thesis Advisory Committee and the Graduate Program Director is required.

Description:
Students may enrol in a directed study under faculty supervision in order to undertake a specialized study of theoretical or research-creation related topics.

Component(s):
Seminar

DART 671 Professional Internship I (3 credits)

Prerequisite/Corequisite:
Students must have completed nine credits in the Master of Design program prior to enrolling. A cumulative GPA of 3.70 or higher is required. A clearly defined written agreement between the student intern and the employer and written permission of any faculty member of the Thesis Advisory Committee and the Graduate Program Director is required.

Description:
This course provides an opportunity for students to further develop their design research in a design firm, cultural organization or residency.

Component(s):
Practicum/Internship/Work Term

DART 672 Professional Internship II (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: DART 671. A cumulative GPA of 3.70 or higher is required. A clearly defined written agreement between the student intern and the employer, and written permission of any faculty member of the Thesis Advisory Committee and the Graduate Program Director is required.

Description:
This course provides an opportunity for students to further develop their design research in a design firm, cultural organization or residency.

Component(s):
Practicum/Internship/Work Term

DART 690 Master's Research and Thesis (24 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: DART 610 and DART 611.

Description:

The Master's Research and Thesis will combine a body of work or practice-led research with a written thesis document of 40-55 pages that contextualizes the practice historically and theoretically and reflects critically on the process and production. A formal oral defense and a final public exhibition of the work or practice-led research are required.

Component(s):

Lecture; Thesis Research

Interdisciplinary Courses in Fine Arts

Creative Practices in Technical Production for Live Performance Courses

CPTP 501 Connections (3 credits)

Description:
Through discussion, readings and papers, students explore ways in which designers and production personnel can participate, collaborate and contribute as full partners in the creation of live performance. Counter-intuitive links are explored in the creation of vibrant and chaotically dynamic works.

CPTP 502 The Art of Proficiency (3 credits)

Description:
This seminar focuses on describing the connection between imagination and the production-based realities associated with live performance. Through the analysis of various aspects of production, students look at ways of bridging the gap between inspiration, imagination and originality and their practical application within all aspects of production.

CPTP 503 Aspects of Visual, Aural and Performing Arts (3 credits)

Description:
This seminar helps the student develop new perspectives by dealing with the fusion between the student's present practice and other art forms. Throughout the semester, students meet various practicing artists in their work environment or as guest speakers at the university.

CPTP 511 Practical Study I (3 credits)

Prerequisite/Corequisite:
These individual projects must be selected in consultation with the program advisor and approved by the program director.

Description:
Under faculty supervision and based on their previous experience or areas of study, students learn how to apply a large number of creative and practical techniques from a chosen discipline towards achieving a cohesive artistic goal as dictated by current practices in the performing and related live arts.

CPTP 512 Practical Study II (3 credits)

Prerequisite/Corequisite:

These individual projects must be selected in consultation with the program advisor and approved by the program director.

Description:
Under faculty supervision and based on their previous experience or areas of study, students expand their language and discourse in the performing arts, focusing on communication and collaboration, while marrying the philosophical and the theoretical with the practical.

CPTP 513 Practical Study III (3 credits)

Prerequisite/Corequisite:
These individual projects must be selected in consultation with the program advisor and approved by the program director.

Description:
Under faculty supervision and based on their previous experience or areas of study, this practical study prepares the students both artistically and practically, deepening their insight into the theoretical and practical universes supporting live performance, whether within well-established and traditional artistic disciplines or within innovative and new methods of creation.

CPTP 514 Practical Study IV (3 credits)

Prerequisite/Corequisite:
These individual projects must be selected in consultation with the program advisor and approved by the program director.

Description:
Under faculty supervision and based on their previous experience or areas of study, students work alongside professional artists either within the university or in a well-established artistic institution. Students are then given immediate ‘hands on’ access to various aspects of production development, construction and staging processes associated with the most current industry expectation and practice.

CPTP 515 Independent Study (3 credits)

Prerequisite/Corequisite:
An Independent Study proposal must be supported by a full-time faculty supervisor and approved by and with written permission from the program director (in consultation with the coordinating committee).

Description:
The student generates a topic to be explored from a specific field relevant to their area of study.

CPTP 598 Special Topics in Creative Practices in Technical Production (3 credits)

Description:
Topics may address a wide range of critical fields related to technical production for live performance examining both conventional and non-traditional approaches to dance, music, theatre, as well as other performance or media arts. Subject matter will vary from term to

term and from year to year.

Notes:

- Students may re-register for this course, provided the course content has changed. Change in content will be indicated by changes to the course title in the course schedule.

Fine Arts Field School Courses

FAFS 660 Master's Fine Arts Field School (3 credits)

(also listed as FAFS 398 and FAFS 860)

Prerequisite/Corequisite:
Students must complete 9 credits at the Master's level prior to enrolling. Permission of the Field School instructor is required.

Description:
This course offers hands-on, experiential learning in one or more disciplines of the Fine Arts via faculty-led travel to and residency at a festival, conference, exhibition or partner institution either locally, nationally, or internationally.

Component(s):
Field Studies

Notes:

- Students may be considered to repeat this course for credit, provided the subject matter is different each time. Students who have received credit for a field school under another course code may also be considered to repeat this course for credit provided the subject matter is different.
- Students enrolled in this course are required to defray the costs of the field school.
- Students will have to apply for this course by submitting required documentation.

FAFS 860 Doctoral Fine Arts Field School (3 credits)

(also listed as FAFS 398 and FAFS 660)

Prerequisite/Corequisite:
Students must complete 9 credits at the PhD level prior to enrolling. Permission of the field school instructor is required.

Description:
This course offers hands-on, experiential learning in one or more disciplines of the Fine Arts via faculty-led travel to and residency at a festival, conference, exhibition or partner institution either locally, nationally, or internationally.

Component(s):
Field Studies

Notes:

- Students may be considered to repeat this course for credit, provided the subject matter is different each time. Students who have received credit for a field school under another course code may also be considered to repeat this course for credit provided the subject matter is different.
- Students enrolled in this course are required to defray the costs of the field school.
- Students will have to apply for this course by submitting required documentation.

Mel Hoppenheim School of Cinema Courses

Film and Moving Image Studies MA Courses

FMST 601 Methods in Film and Moving Image Studies I (3 credits)

Description:

This is a mandatory course in the Film and Moving Image Studies Program. Course materials examine the ways that moving image history, theory, criticism, and analysis have been and can be written, encompassing established ways of seeing, interpreting and understanding cinema and related media.

Notes:

- Although these courses are not sequenced, it is strongly recommended that students enroll in this course prior to enrolling in FMST 602.
- Students who have received credit for FMST 600 may not take this course for credit.

FMST 602 Methods in Film and Moving Image Studies II (3 credits)

Prerequisite/Corequisite:

Although these courses are not sequenced, it is strongly recommended that students enroll in FMST 601 prior to enrolling in this course.

Description:

This is a mandatory course in the Film and Moving Image Studies MA Program. Students develop advanced research, writing and presentation skills. In addition to technical and practical matters, students develop productive and original research questions reflecting traditional and emergent approaches to cinema and related media.

Notes:

- Students who have received credit for FMST 600 may not take this course for credit.

FMST 605 Topics in English Canadian Cinema (3 credits)

Also listed as FMST 805.

Description:

This seminar explores the spectrum of Canadian cinema and video produced in English, and features screenings of historical and contemporary works within fiction, documentary and experimental areas, and in some instances, video and television as well. The culture, political and institutional contexts of production and reception are emphasized, with textural analysis at the core.

Component(s):

Seminar

Notes:

- Students who have received credit for a topic in FMST 605 may not take that same topic under FMST 805 for credit.

FMST 610 Topics in Cinema Québécois (3 credits)

Also listed as FMST 810.

Description:
The course explores Québécois cinema culture. Emphasis is placed on the cultural and political contexts of production and reception. Topics may include the structure of the film industry in Québec, the role of the NFB and other institutions, avenues of distribution and exhibition, also particular groups of films, such as cinema direct, or on specific time periods, or the work of specific filmmakers.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 610 may not take that same topic under FMST 810 for credit.

FMST 615 Topics in European Cinema (3 credits)

Also listed as FMST 815.

Description:
This course covers topics in Russian, German, French, Italian, British, Spanish and Eastern European Cinemas. Questions of national culture, patterns of film production, distribution and reception, and aesthetic histories are covered. The course incorporates future experimental and documentary films as well as readings in specific cultural histories.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 615 may not take that same topic under FMST 815 for credit.

FMST 620 Topics in Non-European Cinema (3 credits)

Also listed as FMST 820.

Description:
This course focuses on Asian, African and South American filmmaking, film cultures and film industries, and comparative studies of issues pertinent to more than one of these cultures.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 620 may not take that same topic under FMST 820 for credit.

FMST 625 Topics in Film History (3 credits)

Also listed as FMST 825.

Description:
This course explores specific problems and methods of film historiography, and examines the practices associated with one or more of these methods. Course topics emphasize various historiographic methods and theories, problems of methodology and analysis.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 625 may not take that same topic under FMST 825 for credit.

FMST 630 Topics in Film Theory (3 credits)

Also listed as FMST 830.

Description:
This course is devoted to close readings of key tests in film theory, examining their background, intellectual histories, and analyzing their significance. Topics may concentrate on historical developments in film theory, or they may address a given method or approach.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 630 may not take that same topic under FMST 830 for credit.

FMST 635 Topics in Aesthetics and Cultural Theory (3 credits)

Also listed as FMST 835.

Description:
This course examines the broader cultural and aesthetic histories relevant to film theory and practice. These theories are studied in depth, beyond the limits of film studies, in order to situate film history and theory within other interdisciplinary perspectives. Topics may include postmodernism, modernism, philosophical aesthetics, sexual representation, Frankfurt School theory, postcolonialism, Marxism, deconstruction, and psychoanalysis.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 635 may not take that same topic under FMST 835 for credit.

FMST 640 Gender Issues in Film (3 credits)

Also listed as FMST 840.

Description:
This course provides an opportunity to contextualize a range of historical and theoretical feminist positions, and women's film practices. Sample course topics include pornography, experimental feminist praxis, gender and race, or constructions of gender in specific historical periods or countries.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 640 may not take that same topic under FMST 840 for credit.

FMST 645 Topics in Film Genres (3 credits)

Also listed as FMST 845.

Description:
This course explores specific narrative film genres, such as the musical, the western, comedy, horror, melodrama and film noir. In each case, the history of the genre and its socio-historical dimensions is explored. Questions of genre transformation, popular mythology, cultural sources and parallel media, institutional analysis (studio practices) and spectatorship are addressed.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 645 may not take that same topic under FMST 845 for credit.

FMST 650 Topics in Experimental Film and Video (3 credits)

Also listed as FMST 850.

Description:
This course examines the history, aesthetics, theory and practice of experimental/avant-garde film and video, and may be organized around specific bodies of work, or theoretical issues such as the politics of representation, pure cinema, poetic structures, reflexivity, or documentary representation. Questions of medium specificity, modernism/postmodernism, performance art and theory, exhibition, distribution, canonization and criticism are addressed.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 650 may not take that same topic under FMST 850 for credit.

FMST 655 Topics in Documentary (MA) (3 credits)

Also listed as FMST 855.

Description:
Documentary history, aesthetics and theory are addressed in this course. Questions of ideology, narrative and style in the context of specific groups of films are studied. Topics may relate to specific countries, histories, methods, institutions and cultural issues and methodological and theoretical problems arising from the concomitant evolution of television journalism, rapidly evolving technology, and changing patterns of exhibition and reception are examined.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 655 may not take that same topic under FMST 855 for credit.

FMST 660 Topics in Film Directors (3 credits)

Also listed as FMST 860.

Description:
This course examines the work of one or more specific directors from stylistic, aesthetic, cultural and historical perspectives. Directors that may be studied include Welles, Dreyer, Eisenstein, Hitchcock, Lang, Pasolini, Godard, Von Sternberg, Akermann and Arzmer, have been the foundation of extensive film studies scholarship.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 660 may not take that same topic under FMST 860 for credit.

FMST 665 Topics in Film and Moving Image Studies (3 credits)

Also listed as FMST 865.

Description:
This course covers special topics related to an instructor's research project. Students study limited and more specialized aspects of film and moving image studies.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 665 may not take that same topic under FMST 865 for credit.

FMST 670 Independent Study (3 credits)

Component(s):
Independent Study

FMST 675 Practicum (3 credits)

Description:
A student may receive credit for work at film institutions (e.g. festivals, archives), periodicals, educational or production establishments and for academic professional internships. Each internship must be approved in advance by the Program Director and the student must consult with an academic supervisor. The duties will be supervised by an individual within the sponsoring organization, in consultation with an academic adviser, to ensure that the student's responsibilities are in keeping with aims of the MA program.

Component(s):
Practicum/Internship/Work Term

Notes:

- The academic advisor will determine the credit value of the internship, which will be evaluated on the basis of the student's written report. The report should demonstrate the student's understanding of the organization's social and cultural role as well as an analysis of the activities and functioning of the organization. This 3-credit practicum should involve at least 135 hours at the host institution.

FMST 680 Practicum (3 credits)

Description:

A student may receive credit for work at film institutions (e.g. festivals, archives), periodicals, educational or production establishments and for academic professional internships. Each internship must be approved in advance by the Program Director and the student must consult with an academic supervisor. The duties will be supervised by an individual within the sponsoring organization, in consultation with an academic adviser, to ensure that the student's responsibilities are in keeping with aims of the MA program.

Component(s):

Practicum/Internship/Work Term

Notes:

- The academic advisor will determine the credit value of the internship, which will be evaluated on the basis of the student's written report. The report should demonstrate the student's understanding of the organization's social and cultural role as well as an analysis of the activities and functioning of the organization. This 3-credit practicum should involve at least 135 hours at the host institution.

FMST 685 Practicum (6 credits)

Description:

A student may receive credit for work at film institutions (e.g. festivals, archives), periodicals, educational or production establishments and for academic professional internships. Each internship must be approved in advance by the Program Director and the student must consult with an academic supervisor. The duties will be supervised by an individual within the sponsoring organization, in consultation with an academic adviser, to ensure that the student's responsibilities are in keeping with aims of the MA program.

Component(s):

Practicum/Internship/Work Term

Notes:

- The academic advisor will determine the credit value of the internship, which will be evaluated on the basis of the student's written report. The report should demonstrate the student's understanding of the organization's social and cultural role as well as an analysis of the activities and functioning of the organization. This 6-credit internship has the same requirements and provisions as the 3-credit internships, except that the student is expected to do twice the work (270 hours). This may occur in a concentrated period of time (one semester), or may be taken over two consecutive semesters.

FMST 690 MA Research and Thesis (27 credits)

Description:
The examination committee will consist of three faculty members, and will be chaired by the Graduate Program Director, who will remain a neutral member of the committee. The GPD may appoint an alternate chair if he or she is a supervisor or reader of the thesis. Theses must be submitted to the department at least six weeks prior to the submission deadline given in the graduate calendar.

Component(s):
Thesis Research

Film and Moving Image Studies PhD Courses

Core and Cluster Courses

Core Courses

FMST 806 Proseminar I (3 credits)

Prerequisite/Corequisite:
Enrolment in Film and Moving Image Studies PhD is required. If prerequisites are not satisfied, written permission of the Mel Hoppenheim School of Cinema Programs is required.

Description:
Proseminar I is designed to give students a broad introduction to advanced film and moving image research by putting different periods, research methodologies, theories, and genres into dynamic relation. Written assignments are required as well as an oral presentation.

Component(s):
Seminar

Notes:

- Students who have received credit for FMST 800 may not take this course for credit.

FMST 807 Proseminar II (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: FMST 806. If prerequisites are not satisfied, written permission of the Mel Hoppenheim School of Cinema Programs is required.

Description:
Proseminar II is designed to give students a broad introduction to advanced film and moving image research by putting different periods, research methodologies, theories,and genres into dynamic relation. Written assignments are required as well as an oral presentation.

Component(s):
Seminar

Notes:

- Students who have received credit for FMST 800 may not take this course for credit.

Cluster Courses (Topics Clusters)

The specific content of the seminars in each of the four topics clusters will be decided by the doctoral program joint committee on a yearly basis, based on course proposals made by accredited faculty.

Cluster A

FMST 801 Seminar in Film and Moving Image History (3 credits)

Description:
Advanced study and research in problems and issues related to film and moving image history and historiography. Topics for seminars in this cluster may include: Methods in Film Historiography; Methodological Aspects of Film-Archival Research; History of Film Technology; History of Film Institutions; History of Pre-Cinema and Early Cinema; History of Silent Cinema; History of Film Movements; History of Documentary Film; History of New Media.

Component(s):
Seminar

Cluster B

FMST 802 Seminar in Film and Moving Image Aesthetics (3 credits)

Description:
Advanced study and research in problems and issues of film aesthetics. Students examine the style associated with certain films, directors, genres, and national cinemas, or investigate film criticism and taste cultures. Topics for seminars in this cluster may include: Topics in Film Style and Form; Topics in Film Criticism; Topocs in Film and the Other Arts: Topics in Aesthetic Theory; Topics in Directors; Topics in Moving Image and New Media Art: New Media Aesthetics; Performance.

Component(s):
Seminar

Cluster C

FMST 803 Seminar in Film and Moving Image Theory (3 credits)

Description:

Seminars in this cluster offer an in-depth investigation of a theory or a theoretical tradition in Film and Moving Image Studies. The course may focus on the work of a single theorist, or a particular approach or methodology. Topics for seminars in this cluster include: Interpretation and Hermeneutics; Reception Theory; Narrative Theory; Topics in Classical Film Theory; Topics in Contemporary Film Theory; Topics in Film and Philosophy; Psychoanalysis and Film; Genre Theory; Semiotics; Topics in Cognitive Theory; Textual Analysis.

Component(s):
Seminar

Cluster D

FMST 804 Seminar in Film, Moving Image and Cultural Theory (3 credits)

Description:
Seminars in this cluster investigate film and the moving image from social and cultural perspectives. Topics for seminars in this cluster may include: Cinema and Modernity; Postmodernity and Globalization; Film, New Media, and Visual Culture, Queer Theory; Feminist Theory; Post-colonial Theory; Topics in Social and Political Theory; Topics in Cultural Studies; Film in the Context of Television and Consumer Culture.

Component(s):
Seminar

Elective Courses (Joint MA/PhD seminars)
Students take a maximum of six credits of elective coursework. Students are entitled to enrol in PhD seminars that are cross-listed with MA seminars, provided they do not repeat seminars taken at Concordia during their MA degree. (Doctoral students registered in these courses will be expected to perform at PhD level).

Note: The focus of any given topics course in a given year determines the cluster to which it belongs. For example, “Topics in Cinéma Québécois” may belong to Cluster A when the focus is on historiography or it may belong to Cluster B when the course centers on aesthetic issues in Quebec cinema.

FMST 805 Topics in English Canadian Cinema (3 credits)

Also listed as FMST 605.

Description:
This seminar explores the spectrum of Canadian cinema and video produced in English, and features screenings of historical and contemporary works within fiction, documentary and experimental areas, and in some instances, video and television as well. The culture, political and institutional contexts of production and reception are emphasized, with textural analysis at the core.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 605 may not take that same topic under FMST 805 for credit.

FMST 810 Topics in Cinema Québécois (3 credits)

Also listed as FMST 610.

Description:
The course explores Québécois cinema culture. Emphasis is placed on the cultural and political contexts of production and reception. Topics may include the structure of the film industry in Québec, the role of the NFB and other institutions, avenues of distribution and exhibition, also particular groups of films, such as cinema direct, or on specific time periods, or the work of specific filmmakers.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 610 may not take that same topic under FMST 810 for credit.

FMST 815 Topics in European Cinema (3 credits)

Also listed as FMST 615.

Description:
This course covers topics in Russian, German, French, Italian, British, Spanish and Eastern European Cinemas. Questions of national culture, patterns of film production, distribution and reception, and aesthetic histories are covered. The course incorporates future experimental and documentary films as well as readings in specific cultural histories.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 615 may not take that same topic under FMST 815 for credit.

FMST 820 Topics in Non-European Cinema (3 credits)

Also listed as FMST 620.

Description:
This course focuses on Asian, African and South American filmmaking, film cultures and film industries, and comparative studies of issues pertinent to more than one of these cultures.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 620 may not take that same topic under FMST 820 for credit.

FMST 825 Topics in Film History (3 credits)

Also listed as FMST 625.

Description:
This course explores specific problems and methods of film historiography, and examines the practices associated with one or more of these methods. Course topics emphasize various historiographic methods and theories, problems of methodology and analysis.

Component(s):
Lecture; Seminar

Notes:

- Students who have received credit for a topic in FMST 625 may not take that same topic under FMST 825 for credit.

FMST 830 Topics in Film Theory (3 credits)

Also listed as FMST 630.

Description:
This course is devoted to close readings of key tests in film theory, examining their background, intellectual histories, and analyzing their significance. Topics may concentrate on historical developments in film theory, or they may address a given method or approach.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 630 may not take that same topic under FMST 830 for credit.

FMST 835 Topics in Aesthetics and Cultural Theory (3 credits)

Also listed as FMST 635.

Description:

This course examines the broader cultural and aesthetic histories relevant to film theory and practice. These theories are studied in depth, beyond the limits of film studies, in order to situate film history and theory within other interdisciplinary perspectives. Topics may include postmodernism, modernism, philosophical aesthetics, sexual representation, Frankfurt School theory, postcolonialism, Marxism, deconstruction, and psychoanalysis.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 635 may not take that same topic under FMST 835 for credit.

FMST 840 Gender Issues in Film (3 credits)

Also listed as **FMST 640**.

Description:
This course provides an opportunity to contextualize a range of historical and theoretical feminist positions, and women's film practices. Sample course topics include pornography, experimental feminist praxis, gender and race, or constructions of gender in specific historical periods or countries.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 640 may not take that same topic under FMST 840 for credit.

FMST 845 Topics in Film Genres (3 credits)

Also listed as **FMST 645**.

Description:
This course explores specific narrative film genres, such as the musical, the western, comedy, horror, melodrama and film noir. In each case, the history of the genre and its socio-historical dimensions is explored. Questions of genre transformation, popular mythology, cultural sources and parallel media, institutional analysis (studio practices) and spectatorship are addressed.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 645 may not take that same topic under FMST 845 for credit.

FMST 850 Topics in Experimental Film and Video (3 credits)

Also listed as FMST 650.

Description:
This course examines the history, aesthetics, theory and practice of experimental/avant-garde film and video, and may be organized around specific bodies of work, or theoretical issues such as the politics of representation, pure cinema, poetic structures, reflexivity, or documentary representation. Questions of medium specificity, modernism/postmodernism, performance art and theory, exhibition, distribution, canonization and criticism are addressed.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 650 may not take that same topic under FMST 850 for credit.

FMST 855 Topics in Documentary (3 credits)

Also listed as FMST 655.

Description:
Documentary history, aesthetics and theory are addressed in this course. Questions of ideology, narrative and style in the context of specific groups of films are studied. Topics may relate to specific countries, histories, methods, institutions and cultural issues and methodological and theoretical problems arising from the concomitant evolution of television journalism, rapidly evolving technology, and changing patterns of exhibition and reception are examined.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 655 may not take that same topic under FMST 855 for credit.

FMST 860 Topics in Film Directors (3 credits)

Also listed as FMST 650.

Description:
This course examines the work of one or more specific directors from stylistic, aesthetic, cultural and historical perspectives. Directors that may be studied include Welles, Dreyer, Eisenstein, Hitchcock, Lang, Pasolini, Godard, Von Sternberg, Akermann and Arzmer, have been the foundation of extensive film studies scholarship.

Component(s):
Seminar

Notes:

- Students who have received credit for a topic in FMST 660 may not take that same topic under FMST 860 for credit.

FMST 865 Topics in Film and Moving Image Studies (3 credits)

Also listed as FMST 665.

Description:
This course covers special topics related to an instructor's research project. Students study limited and more specialized aspects of film and moving image studies.

Notes:

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- Students who have received credit for a topic in FMST 665 may not take that same topic under FMST 865 for credit.

Thesis, Research and Comprehensive Examinations

FMST 885 Thesis Proposal (6 credits)

Description:
The thesis proposal consists of a 25-30 page document outlining the object of study of the thesis, its objectives, the research hypothesis, and the methodology that will be used or developed. A detailed bibliography must accompany the document as well as a preliminary table of contents. The thesis proposal must be defended orally before a jury consisting of the student's supervisor and two faculty members (the student's dissertation committee), which ideally is the same as his/her examination committee. The proposal is submitted by the student to then supervisor within three months of successful completion of the comprehensive exam, and approved by the supervisor no later than April of the student's second year in the program. Upon approval of the proposal, an oral defense takes place no later than the following May.

Component(s):
Thesis Research

FMST 887 Comprehensive Exam (3 credits)

Description:
Upon completion of at least 12 credits of coursework, the student begins preparing the reading list and filmography (where appropriate) for the comprehensive examination, which pertains to the student's major subfield of research. A reading list of approximately 50 books and essays along with an appropriate and relevant filmography will be prepared by the student with the assistance of his/her

supervisor. The reading list and essay are evaluated by an examination committee comprising three faculty members, including the student's supervisor. The reading list and filmography are first approved by the supervisor and then by the other members of the examination committee, who may suggest further changes. Three to four months after the final approval of the reading list, having indicated his/her readiness to the supervisor, the student receives up to four examination questions from the supervisor, based on the reading list. The student has two weeks to produce an essay answering two of the questions. This exam should be completed by the student no later than December of his/her second year in the program (fourth term).

Component(s):
Thesis Research

FMST 888 Specialization Examination Essay (3 credits)

Description:
This course functions as a written case study that demonstrates the candidate's capacity to perform critical analysis of research material and address research questions as outlined in the thesis proposal. The essay is normally 6000 to 9000 words, following the professional criteria for publication. It is followed by an oral defense before the examination subcommittee. The specialization essay is submitted by the student to the supervisor and his/her examination committee, and is approved for submission no later than December of his/her third year in the program (seventh term). The oral defense is then scheduled for the following January. Upon successful completion of the specialization examination essay (and contingent on the completion of the required 15 course credits), the student is admitted to candidacy.

Component(s):
Thesis Research

FMST 890 Research and Thesis (63 credits)

Description:
A major portion of the doctoral program is the planning and execution of innovative and original research under the direction of a supervisor. The student's research will be presented in a written thesis and defended orally in conformity with the regulations outlined in Concordia University's Graduate Calendar. The candidate will submit his/her doctoral thesis to an examining committee consisting of at least five faculty members: the candidate's supervisor, two faculty members from the Mel Hoppenheim School of Cinema, a faculty member from another department within Concordia (external-to-program examiner), and an external-to-University faculty member. The doctoral thesis defence will be an oral examination conducted by a chair who shall be the Dean of Graduate Studies or a delegate.

Component(s):
Thesis Research

Other Film and Moving Image Studies PhD Elective Courses

FMST 870 Independent Study (3 credits)

Description:
Independent Study courses offer students opportunities to research and write about particular topics in film studies that are not

covered in the courses offered in a given year. Students must propose a topic to a full-time faculty member, under whose supervision they complete the course.

Component(s):
Independent Study

FMST 880 Research Seminar (3 credits)

Description:
Film Studies faculty in the School of Cinema may organize seminars on a current research project.

Component(s):
Seminar

Cinematic Arts MFA Courses

FMPR 620 Film Production I (3 credits)

Prerequisite/Corequisite:
Enrolment in the Cinematic Arts MFA is required.

Description:
This research-creation methods course develops theoretical frameworks within cross-disciplinary trajectories for contemporary cinematic practices. Students investigate the reciprocal affiliations between theory and creative process, and the cultural and discursive contexts in which various cinematic idioms reside. Practice-based methodologies reflect the objectives of the program. Through a combination of seminar discussions, studio experiments, screenings, readings, and individual writings, students situate their thesis research creation conceptually and reflect critically on their creative processes. Writing exercises provide the foundation of the research-creation thesis proposal.

Component(s):
Seminar; Studio

Notes:

- Students who have received credit for FMPR 610 may not take this course for credit.

FMPR 621 Film Production II (3 credits)

Prerequisite/Corequisite:
Enrolment in the Cinematic Arts MFA; or a basic understanding of cinematographic principles such as exposure theory, lighting and camera-to-screen processes and written permission of the Graduate Program Director.

Description:

Students address moving image aesthetics from a filmmaker-creator's perspective through individual or group exercises and in-depth formal analyses. Moving from concept to screening, topics explored may include the poetics of light, spatialization, script visualization, improvised imaging, experimental optical processes, and analogue praxis. The overall focus of this course is on the relationships between methods, materials, and the formal or stylistic strategies used across diverse cinematic practices.

Component(s):
Seminar; Studio

Notes:

- Students who have received credit for FMPR 611 may not take this course for credit.

FMPR 622 Film Production III (3 credits)

Prerequisite/Corequisite:
Enrolment in the Cinematic Arts MFA; or a basic knowledge of sound recording and post-production processes is required; and permission from the Graduate Program Director is required.

Description:
This studio course addresses sound aesthetics and allows students to develop an individualized approach to the audio/visual relationship within cinematic contexts. Studio projects emphasize the composition of sound in combination with film production, animation, and other forms of moving-image media. Workshops in audio production complement screenings and readings are included. Topics may include auditory perception, sound for animation, documentary and fiction, music for screens, visual music, sound art, and sound re-recording.

Component(s):
Seminar; Studio

Notes:

- Students who have received credit for FMPR 612 may not take this course for credit.

FMPR 623 Film Production IV (3 credits)

Description:
This studio course in methods and processes examines interdisciplinary and collaborative strategies of innovative cinematic processes in a diversity of genres. Through a combination of studio experiments, screenings and writings, the course engages topics such as division of labor and disciplinary specialization; poetics of space and temporality; cinematic technologies and exhibition modalities; creative producing strategies; and assessment of experimental processes and outcomes. The course culminates in a presentation of creative work and the thesis project proposal.

Component(s):
Seminar; Studio

Notes:

- Students who have received credit for FMPR 613 may not take this course for credit.

FMPR 625 Graduate Symposium (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: FMPR 623.

Description:
Under the guidance of an instructor, the Graduate Symposium fosters a community of practice and research by exposing students to a diversity of materials, methods and processes, with the aim of expanding their understanding of disciplinary similarities and differences within the cinematic arts. Throughout this symposium series, in-progress thesis research presentations by students are enhanced with presentations by faculty and visiting cine-artists. In addition to oral presentations, students are required to submit a written research report for evaluation.

Component(s):
Seminar; Studio

Notes:

- Students who have received credit for DISP 615 may not take this course for credit.

FMPR 630 Special Topics in Creative Nonfiction (3 credits)

Description:
This course examines approaches specific to contemporary nonfiction cinematic production. Through studio assignments, screenings and readings, the course integrates both theory and practice in idea development, production and post-production with a focus on aesthetics and ethics. Topics may include independent documentary approaches, direct cinema, essayistic forms, experimental practices, hybrid forms, interactive documentary, ethnographic research creation, and expanded screen idioms.

Component(s):
Seminar; Studio

FMPR 640 Special Topics in Fiction Practices (3 credits)

Description:
This graduate studio course covers contemporary approaches to auteur-driven cinematic fiction directing. Through workshops, readings, screenings and studio experiments, topics explored may include writing as creative practice, dramatic screenwriting and script analysis, innovative development processes, previsualization, work with actors, experimental on-set methodologies, mise-en-scène and diverse directorial approaches to image/sound poetics.

Component(s):
Seminar; Studio

FMPR 661 Professional Internship (3 credits)

Prerequisite/Corequisite:
Students must complete 9 credits in the MFA in Cinematic Arts prior to enrolling. An internship proposal must be supported by a full-time faculty member and approved with written permission by the Graduate Program Director.

Description:
Under the joint supervision of the faculty member and the film industry supervisor, the student is employed within by a professional organization or other research affiliate relevant to the field of cinematic arts. Upon completion of the 150-hour internship, students are required to submit a learning outcomes report to the industry supervisor for signature, prior to submitting the report to the faculty member for assessment.

Component(s):
Practicum/Internship/Work Term

Notes:

- Students may not take this course to satisfy the Cinematic Arts MFA elective courses. Students may only receive credit for this course in place of the out-of-program elective requirement with written permission from the Graduate Program Director.
- Students who have received credit for INTP 661 may not take this course for credit.

FMPR 671 Independent Study (3 credits)

Prerequisite/Corequisite:
Students must complete 9 credits in the MFA in Cinematic Arts prior to enrolling. The independent study proposal must be supported by a full-time faculty member and approved with permission by the Graduate Program Director.

Description:
The independent study course offers students opportunities to research and write about particular topics in film production that are not covered in the courses offered.

Component(s):
Independent Study

Notes:

- Students may not take this course to satisfy the Cinematic Arts MFA elective courses. Students may only receive credit for this course in place of the out-of-program elective requirement with written permission from the Graduate Program Director.
- Students who have received credit for INDS 671 may not take this course for credit.

FMPR 691 Research-Creation Thesis (24 credits)

Description:

The thesis encompasses two synthesized components: a creative production component and a written component. The creative production constitutes an integral part of the research creation and may be presented in a variety of cinematic idioms and platforms. Its length is dictated by considerations of genre and technique, and therefore varies accordingly. The written component should demonstrate knowledge of prevailing practices and precedents as they relate to the creative production; critically consider the processes employed; and exhibit a basic knowledge of the literature relevant to the creative production.

Component(s):

Thesis Research

Notes:

- Students who have received credit for PROJ 691 and PROJ 692 may not register for the Research-Creation Thesis.

Music Courses

Advanced Music Performance Studies Courses

AMPS 501 Seminar - Workshop in Performance Skills (3 credits)

Description:
An intensive developmental course for individual and group performance. A broad range of subjects will be explored including practice methods, effective rehearsing, repertoire research, program- building, memorization, improvisation, and approaching auditions and competitions.

Component(s):
Seminar

Notes:

- This course may be repeated as AMPS 502
- This course may be repeated as AMPS 502

AMPS 503 String Seminar (3 credits)

Description:
This course examines specific aspects of performance and repertoire studies for stringed instruments.

Component(s):
Seminar

Notes:

- *This course may be repeated as AMPS 504*

AMPS 505 Piano Seminar (3 credits)

Description:
This course examines specific aspects of performance and repertoire studies for piano.

Component(s):
Seminar

Notes:

- *This course may be repeated as AMPS 506*

AMPS 507 Voice Seminar (3 credits)

Description:
This course examines specific aspects of performance and repertoire studies for voice.

Component(s):
Seminar

Notes:

- *This course may be repeated as AMPS 508*

AMPS 509 Organ and Harpsichord Seminar (3 credits)

Description:
This course examines specific aspects of performance and repertoire studies for organ and harpsichord.

Component(s):
Seminar

Notes:

- *This course may be repeated as AMPS 510*

AMPS 511 Chamber Ensembles (3 credits)

Description:
Ensembles work intensively on preparation and presentation of public performances or competitions.

Notes:

- *This course may be repeated as AMPS 512*

AMPS 513 Orchestra (3 credits)

Description:
Preparation and public performance with orchestra of one or several works as soloist or principal player.

Notes:

- *This course may be repeated as AMPS 514*

AMPS 515 Performance Practices (3 credits)

Description:
Individual projects in particular aspects of performance practice such as basso continuo, ornamentation, the cadenza, contemporary performance techniques, improvisation.

Notes:

- *This course may be repeated as AMPS 516*

AMPS 517 Special Project in Music (3 credits)

Description:
Individual projects in music theory, analysis, composition, aesthetics, music history, or inter- disciplinary studies connected with music.

Notes:

- *This course may be repeated as AMPS 518*

AMPS 519 Recording Production (3 credits)

Description:
An audio recording is made in partnership with an advanced recording student. The performer works with an advanced recording

student to experiment with various sound recording possibilities, placement and type of microphones, creation of resonance, ambience, “honesty” vs. enhancement, etc. involving several sessions which could include listening to recordings the performer particularly enjoys or dislikes. The advanced recording student is responsible for producing a high-quality digitally edited recording (DAT or CD-R).

AMPS 520 Recital I (6 credits)

AMPS 521 521 Private Instrumental or Vocal Instruction I (3 credits)

Notes:

- This is a full year course.

AMPS 530 Recital II (6 credits)

AMPS 531 Private Instrumental or Vocal Instruction II (3 credits)

Notes:

- This is a full year course.

AMPS 598 Special Topics in Music Performance Studies (3 credits)

AMPS 599 Special Topics in Music Performance Studies (6 credits)

Studio Arts Courses

Studio Arts MFA Seminars

Each year the Faculty of Fine Arts offers a selection of courses from the Studio Arts and Cinema departments. A list of those courses, as well as information about the specific content of the seminar offerings is available from the MFA Studio Arts office.

ASEM 620 Art: Ideas and Practices (3 credits)

Description:
This seminar addresses the relationship between theory and studio practice. Professional and practical issues facing the artist will be discussed.

Component(s):
Seminar

ASEM 641 Seminar in Contemporary Art (6 credits)

Description:
This course addresses issues which situate and inform artists and their work.

Component(s):
Seminar

ASEM 642 Seminar in Contemporary Art (3 credits)

Description:
This course addresses issues which situate and inform artists and their work.

Component(s):
Seminar

Notes:

ASEM 643 Special Topics in Art and Ideology (6 credits)

Description:
Special topics will address a variety of issues that are factors in the making, presentation and the situating of art in society.

Component(s):

Seminar

ASEM 644 Special Topics In Art and Ideology (3 credits)

Description:
Special topics will address a variety of issues that are factors in the making, presentation and the situating of art in society.

Component(s):
Seminar

ASEM 645 Special Topics in Art and Culture (6 credits)

Description:
Topics are drawn from a variety of discourses to address the construction of identity in contemporary art and society.

Component(s):
Seminar

ASEM 646 Special Topics in Art and Culture (3 credits)

Description:
Topics are drawn from a variety of discourses to address the construction of identity in contemporary art and society.

Component(s):
Seminar

ASEM 651 Special Topics in Media Arts (6 credits)

Description:
Topics may address a wide range of critical fields related to media art practices, examining both conventional and non-traditional artworks such as performance, audio, video, and computer art, as well as other media.

Component(s):
Seminar

ASEM 652 Special Topics in Media Arts (3 credits)

Description:

Topics may address a wide range of critical fields related to media art practices, examining both conventional and non-traditional artworks such as performance, audio, video, and computer art, as well as other media.

Component(s):
Seminar

ASEM 653 Aspects of Contemporary Cinema (6 credits)

Description:
This seminar examines critical issues in contemporary cinema.

Component(s):
Seminar

ASEM 654 Aspects of Contemporary Cinema (3 credits)

Description:
This seminar examines critical issues in contemporary cinema.

Component(s):
Seminar

MFA Studio Courses

CERA 610 Ceramics I (6 credits)

Description:
A studio course providing an opportunity for intense investigation into a broad range of issues in ceramics and other disciplines. Under the supervision of a professor, the structure of the course allows each participant to pursue independent interests.

Component(s):
Studio

CERA 611 Ceramics II (6 credits)

Description:
A continuation of CERA 610.

Component(s):
Studio

CERA 612 Ceramics III (6 credits)

Description:
A continuation of CERA 611.

Component(s):
Studio

CERA 613 Ceramics IV (6 credits)

Description:
A continuation of CERA 612.

Component(s):
Studio

DISP 615 Directed Studio Practice (3 credits)

Description:
Under the guidance of an instructor, students will pursue a directed studio practice.

Component(s):
Studio

FBRS 610 Fibres and Material Practices I (6 credits)

Description:
A studio course providing an opportunity for intense investigation in fibres and material practices as well as other disciplines. Under the supervision of a professor, the structure of the course allows each student to pursue independent interests.

Component(s):
Studio

FBRS 611 Fibres and Material Practices II (6 credits)

Description:
A continuation of FBRS 610.

Component(s):

Studio

FBRS 612 Fibres and Material Practices III (6 credits)

Description:
A continuation of FBRS 611.

Component(s):
Studio

FBRS 613 Fibres and Material Practices IV (6 credits)

Description:
A continuation of FBRS 612.

Component(s):
Studio

IMCA 610 Intermedia (Video, Performance and Electronic Arts) I (6 credits)

Description:
A studio course providing an opportunity for intense investigation in video, performance and electronic arts, as well as other disciplines. Under the supervision of a faculty member, the structure of the course allows each participant to pursue independent studio practice.

Component(s):
Studio

Notes:

- Students who have received credit for OPME 610 may not take this course for credit.

IMCA 611 Intermedia (Video, Performance and Electronic Arts) II (6 credits)

Description:
A continuation of IMCA 610.

Component(s):
Studio

Notes:

- Students who have received credit for OPME 611 may not take this course for credit.

IMCA 612 Intermedia (Video, Performance and Electronic Arts) III (6 credits)

Description:
A continuation of IMCA 611.

Component(s):
Studio

Notes:

- Students who have received credit for OPME 612 may not take this course for credit.

IMCA 613 Intermedia (Video, Performance and Electronic Arts) IV (6 credits)

Description:
A continuation of IMCA 612.

Component(s):
Studio

Notes:

- Students who have received credit for OPME 613 may not take this course for credit.

PHOT 610 Photography I (6 credits)

Description:
A studio course providing investigation into a broadly defined concept of photography. Under the supervision of a professor, each student pursues independent studio practice.

Component(s):
Studio

PHOT 611 Photography II (6 credits)

Description:
A continuation of PHOT 610.

Component(s):
Studio

PHOT 612 Photography III (6 credits)

Description:
A continuation of PHOT 611.

Component(s):
Studio

PHOT 613 Photography IV (6 credits)

Description:
A continuation of PHOT 612.

Component(s):
Studio

PRIN 610 Print Media I (6 credits)

Description:
A studio course providing intense investigation of the technical and theoretical concerns of diverse forms of print media. Under the supervision of a professor, each student pursues independent studio practice.

Component(s):
Studio

PRIN 611 Print Media II (6 credits)

Description:
A continuation of PRIN 610.

Component(s):
Studio

PRIN 612 Print Media III (6 credits)

Description:
A continuation of PRIN 611.

Component(s):
Studio

PRIN 613 Print Media IV (6 credits)

Description:
A continuation of PRIN 612.

Component(s):
Studio

PTNG 610 Painting I (6 credits)

Description:
A studio course providing opportunity for intense investigation into a wide range of approaches to painting. Under the supervision of a professor the structure of the course allows each student to pursue individual interests in painting.

Component(s):
Studio

PTNG 611 Painting II (6 credits)

Description:
A continuation of PTNG 610.

Component(s):
Studio

PTNG 612 Painting III (6 credits)

Description:
A continuation of PTNG 611.

Component(s):
Studio

PTNG 613 Painting IV (6 credits)

Description:
A continuation of PTNG 612.

Component(s):
Studio

SCUL 610 Sculpture I (6 credits)

Description:
A studio course offering the opportunity for intense investigation into the formation of visual and material culture in art. Under the supervision of a professor each student may pursue independent studio practice.

Component(s):
Studio

SCUL 611 Sculpture II (6 credits)

Description:
A continuation of SCUL 610.

Component(s):
Studio

SCUL 612 Sculpture III (6 credits)

Description:
A continuation of SCUL 611.

Component(s):
Studio

SCUL 613 Sculpture IV (6 credits)

Description:
A continuation of SCUL 612.

Component(s):
Studio

Studio Arts MFA Project and Examination

PROJ 691 Studio Project (9 credits)

Description:
With the guidance of a faculty advisor, students prepare work leading to an exhibition.

Component(s):
Studio; Research

PROJ 692 Exhibition (3 credits)

Description:
Following the successful completion of the Studio Project, the student prepares a professional-level presentation within a public forum (gallery, screening room, etc.) accompanied by an artist's statement. The candidate meets with an Examination Committee to describe the evolution of the work and to situate it in the context of current practice and theory. The Committee will question the student and determine whether or not to recommend that the student be awarded the MFA degree.

Component(s):
Studio

Studio Arts Internship Courses

INTP 660 Professional Internship (6 credits)

Prerequisite/Corequisite:
Students must have completed 21 credits in the MFA Program prior to enrolling. Students must submit an internship proposal supported by a full-time faculty member and approved with written permission by the Graduate Program Director prior to enrolling.

Description:
Under the joint supervision of a qualified professional and a full-time faculty member, the student will be employed within industry, or by a professional organization or other relevant affiliation. Assessment is based upon a required paper, contributions to supervisory sessions and the successful completion of the internship (300 hours).

Component(s):
Practicum/Internship/Work Term

INTP 661 Professional Internship I (3 credits)

Prerequisite/Corequisite:
Students must have completed 21 credits in the MFA Program prior to enrolling. Students must submit an internship proposal supported by a full-time faculty member and approved with written permission by the MFA Graduate Program Director prior to enrolling.

Description:
Under the joint supervision of a qualified professional and a full-time faculty member the student will be employed within industry, or by a professional organization or other relevant affiliation. Assessment is based upon a required paper, contributions to supervisory sessions and the successful completion of the internship (150 hours).

Component(s):
Practicum/Internship/Work Term

INTP 662 Professional Internship II (3 credits)

Prerequisite/Corequisite:
Students must have completed 21 credits in the MFA Program prior to enrolling. Students must submit an internship proposal supported by a full-time faculty member and approved with written permission by the MFA Graduate Program Director prior to enrolling.

Description:
Under the joint supervision of a qualified professional and a full-time faculty member the student will be employed within industry, or by a professional organization or other relevant affiliation. Assessment is based upon a required paper, contributions to supervisory sessions and the successful completion of the internship (150 hours).

Component(s):
Practicum/Internship/Work Term

Studio Arts Independent Studies Courses

INDS 670 Independent Study (6 credits)

Prerequisite/Corequisite:
Students must have completed 21 credits in the MFA Program prior to enrolling. Students must submit an internship proposal supported by a full-time faculty member and approved with written permission by the MFA Graduate Program Director prior to enrolling.

Description:
The student explores a specific field or topic relevant to their area of study.

Component(s):
Studio

INDS 671 Independent Study I (3 credits)

Prerequisite/Corequisite:
Students must have completed 21 credits in the MFA Program prior to enrolling. Students must submit an independent study proposal supported by a full-time faculty member and approved with written permission by the Graduate Program Director prior to enrolling.

Description:
The student explores a specific field or topic relevant to their area of study.

Component(s):
Studio

INDS 672 Independent Study II (3 credits)

Prerequisite/Corequisite:
Students must have completed 21 credits in the MFA Program prior to enrolling. Students must submit an independent proposal supported by a full-time faculty member and approved with written permission by the Graduate Program Director prior to enrolling.

Description:
The student explores a specific field or topic relevant to their area of study.

Component(s):
Studio

Gina Cody School of Engineering and Computer Science Courses

Computer Science and Software Engineering Courses

- List of Computer Science Courses by Topic Areas
- Computer Science Graduate Diploma Courses
- Computer Science and Software Engineering Master's and PhD Courses

Engineering Courses

- List of Engineering Courses by Topic Areas
- Building Engineering Courses
- Chemical and Materials Engineering Courses
- Civil Engineering Courses
- Electrical and Computer Engineering Courses
- Engineering and Computer Science Courses
- Information Systems Engineering Courses
- Mechanical, Industrial and Aerospace Engineering Courses

List of Computer Science Courses by Topic Areas

C01 - Developments in Computer Science

Note: Students may re-register for these courses, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

- COMP 691 Topics in Computer Science I (4.00)
- COMP 791 Topcis in Computer Science II (4.00)

C02 - Parallel and Distributed Systems

- COMP 6231 Distributed System Design (4.00)
- COMP 6281 Parallel Programming (4.00)
- COMP 7241 Parallel Algorithms and Architectures (4.00)
- COMP 7251 Mobile Computing and Wireless Networks (4.00)

Note: The following course is cross-listed: COMP 6281

C03 - Image Processing/Pattern Recognition and Graphics

- COMP 6311 Animation for Computer Games (4.00)
- COMP 6321 Machine Learning (4.00)
- COMP 6331 Advanced Game Development (4.00)
- COMP 6341 Computer Vision (4.00)
- COMP 6371 Immersive Technologies (4.00)
- COMP 6381 Geometric Modelling and Processing (4.00)
- COMP 6711 Computational Geometry (4.00)
- COMP 6731 Pattern Recognition (4.00)
- COMP 6761 Advanced 3D Graphics for Game Programming (4.00)
- COMP 6771 Image Processing (4.00)
- COMP 7661 Advanced Rendering and Animation (4.00)
- COMP 7751 Advanced Pattern Recognition (4.00)
- COMP 7781 Advanced Image Processing (4.00)

Note: The following courses are cross-listed: COMP 6311, COMP 6331, COMP 6341, COMP 6371, COMP 6731, COMP 6771. COMP 6381

C04 - Software Systems and Languages

- COMP 6411 Comparative Study of Programming Languages (4.00)
- COMP 6421 Compiler Design (4.00)
- COMP 6461 Computer Networks and Protocols (4.00)
- COMP 7451 Semantics of Programming Languages (4.00)

Note: The following course is cross-listed: COMP 6421.

C05 - Information Processing and Management

- COMP 6521 Advanced Database Technology and Applications (4.00)
- COMP 6591 Introduction to Knowledge-Base Systems (4.00)
- COMP 6811 Bioinformatics Algorithms (4.00)
- COMP 6821 Bioinformatics Databases and Systems (4.00)

- COMP 7531 Database Systems Principles (4.00)

C06 - Scientific Computation and Algorithms

- COMP 6351 Topics in Scientific Computation (4.00)
- COMP 6361 Numerical Analysis of Nonlinear Equations (4.00)
- COMP 6621 Discrete Mathematics of Paul Erdös (4.00)
- COMP 6641 Theory of Computation (4.00)
- COMP 6651 Algorithm Design Techniques (4.00)
- COMP 6661 Combinatorial Algorithms (4.00)
- COMP 7521 Cryptography and Data Security (4.00)
- COMP 7651 Advanced Analysis of Algorithms (4.00)

C07 - Artificial Intelligence and Human-Machine Communication

- COMP 6531 Foundations of the Semantic Web (4.00)
- COMP 6721 Applied Artificial Intelligence (4.00)
- COMP 6741 Intelligent Systems (4.00)
- COMP 6751 Natural Language Analysis (4.00)
- COMP 6781 Statistical Natural Language Processing (4.00)
- COMP 6791 Information Retrieval and Web Search (4.00)

Note: The following courses are cross-listed: COMP 6741, COMP 6791.

C08 - Developments in Software Engineering

- SOEN 691 Topics in Software Engineering (4.00)
- SOEN 791 Topics in Software Engineering II (4.00)

C09 - Software Development

- SOEN 6441 Advanced Programming Practices (4.00)
- SOEN 6751 Human Computer Interface Design (4.00)
- SOEN 7761 Intelligent User Interfaces (4.00)

C10 - Software Architecture and Design

- SOEN 6311 Formal Methods (4.00)
- SOEN 6461 Software Design Methodologies (4.00)
- SOEN 6471 Advanced Software Architectures (4.00)
- SOEN 6481 Software Systems Requirements Specification (4.00)
- SOEN 6861 Services Computing: Foundations, Design and Implementations (4.00)

C11 - Software Maintenance and Quality

- SOEN 6431 Software Comprehension and Maintenance (4.00)
- SOEN 6491 Software Refactoring (4.00)
- SOEN 6591 Software Mining and Analysis (4.00)
- SOEN 6611 Software Measurement (4.00)
- SOEN 7481 Software Verification and Testing (4.00)

C12 - Software Development Processes and Management

- SOEN 6011 Software Engineering Processes (4.00)

- SOEN 6021 Software Re-engineering (4.00)
- SOEN 6841 Software Project Management (4.00)

C13 - Software Engineering

- SOEN 6111 Big Data Analytics (4.00)
- SOEN 6211 Semantic Computing (4.00)
- SOEN 6761 Multimedia Computing (4.00)
- SOEN 6941 Software Engineering Project (4.00)
- SOEN 6951 Software Engineering Case Study (4.00)

Note: The following course is cross-listed: SOEN 6111.

C14 - Industrial Experience, Seminar, Project, Report and Thesis

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- COMP 6961 Graduate Seminar in Computer Science (1.00)
- COMP 6971 Project and Report I (4.00)
- COMP 6981 Project and Report II (4.00)
- SOEN 6971 Project and Report I (4.00)
- COMP 7941 Master's Research and Thesis (29.00)

- ENCS 6921 Industrial Stage and Training (4.00)
- SOEN 7941 Master's Research and Thesis (29.00)
- SOEN 6501 Programming Competency Test (0.00)
- SOEN 6981 Project and Report II (4.00)

C15 - Doctoral Seminar, Research, and Thesis

- ENCS 8011 PhD Seminar (2.00)
- ENCS 8511 Doctoral Research Proposal (6.00)
- COMP 8901 Doctoral Research and Thesis (70.00)
- SOEN 8901 Doctoral Research and Thesis (70.00)
- ENCS 8501 Comprehensive Examination (0.00)

Doctoral students must begin work on ENCS 8501 within 12 (24) months after the first registration as full-time (part-time) students in a PhD program. This course is graded on a pass/fail basis and has no credit value.

C16 - Cognate Disciplines

Students in a master's program may take courses from Engineering Topic Areas E10 - Robotics, E42 - Communications, E66 - Systems Engineering, E68 - Quality Systems Engineering and E70 - Information Systems Engineering for credit and also from the course list below, provided that prerequisite requirements are met:

COEN 7311

- ENCS 6021 Engineering Analysis (4.00)
- ENCS 6161 Probability and Stochastic Processes (4.00)
- ENCS 6181 Optimization Techniques I (4.00)

Note: The following course is cross-listed: ENCS 6181.

Computer Science Graduate Diploma Courses

COMP 5201 Computer Organization and Assembly Language (4 credits)

Description:

Programming in a subset of a suitably chosen assembly language; instruction-set level view of computers; translation of sample high-level language constructs to the instruction-set level. User-level view of the computer system through an operating system. Privileged modes of operation of the hardware for achieving goals such as protection and resource management; the hierarchy of the memory system as a resource, its concepts and requirements. Input/output including interrupt handling.

COMP 5261 Computer Architecture (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously or concurrently: COMP 5461.

Description:

Computer architecture models: control-flow and data-flow. Concurrency and locality, data dependency theory. Instruction level parallelism. Instruction scheduling. Pipelined processors. Vector processors. Thread level parallelism. Multiprocessors. Shared memory models. Coherence protocols. Interconnection networks. Performance issues. Advanced topics in contemporary computer architectures. Case studies.

Notes:

- Students who have completed COMP 326 may not take this course for credit.

COMP 5361 Discrete Structures and Formal Languages (4 credits)

Description:

Discrete mathematics: sets, logic, quantifiers, relations, and functions. Regular languages: finite automata (deterministic and non-deterministic), regular expressions, regular grammars, pumping lemmas for regular languages, closure properties for regular languages. Context-free languages: context-free grammars, parsing and ambiguity, normal forms for grammars, pushdown automata, closure properties for context free languages.

COMP 5421 Advanced Programming (4 credits)

Prerequisite/Corequisite:

The following course must be completed previously: COMP 5511.

Description:

Designing classes and programs. Program development. Encapsulation; dependency minimization. Inheritance hierarchies; abstract

classes and interfaces; frameworks, Reading and writing files; serialization. Applications of inheritance and generics. Design and use of class libraries; user interface design; database and network programming.

COMP 5461 Operating Systems (4 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: COMP 5201; COMP 5511.

Description:

Basic concepts of operating systems and system programming. Processes, interprocess communication, and synchronization, memory allocation, segmentation, paging. Resource allocation, scheduling, performance evaluation. File systems, storage devices, I/O systems. Protection, security, and privacy. Advanced operating system concepts: distributed systems, multi-processor and parallel systems, real-time systems.

COMP 5481 Programming and Problem Solving (4 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: MATH 204; MATH 205 or equivalent.

Description:

Overview of programming and problem solving. Operators and expressions. Types, values, and variables; type conversion. Classes, objects, and methods. Assignment, conditional and repetitive statements. Arrays. Input and Output. Program structure and organization; encapsulation. Recursion and its uses. Designing classes and member functions; aggregation and inheritance. Introduction to libraries and their applications.

Component(s):

Lecture 3 hours per week; Tutorial 1 hour per week; Laboratory 3 hours per week

COMP 5511 Principles of Data Structures (4 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: COMP 5481 or equivalent training or experience in Java programming.

Description:

Definition, use, and application of fundamental data structures and associated algorithms. Asymptotic analysis of algorithms. Storage management: arrays, strings, lists and trees. Data abstraction: stacks, queues, priority queues, sets, and tables. Searching and sorting. Programming techniques: designing classes for data structures.

COMP 5531 Files and Databases (4 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: COMP 5361; COMP 5511.

Description:

Introduction to file management: basic file structures and access methods, sequential and indexed-sequential files, B+-trees and R-trees; external sorting; dynamic hashing; clustering techniques. Introduction to database management: fundamental data models - hierarchical, network, and relational; data dependencies; normal forms; and relational database design. Formal query languages: relational algebra, calculus; commercial languages: SQL, QBE. Fundamentals of data processing.

COMP 5541 Tools and Techniques for Software Engineering (4 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: COMP 5361; COMP 5511; ENCS 6721. If prerequisites are not satisfied, permission of the Graduate Program Director is required.

Description:

The software life cycle. IEEE and MIL standards for software documentation. Formal methods. Software architectures. Software design and prototyping. Interfacing and encapsulation. Use of libraries, frameworks, and CASE tools. Implementation and maintenance. Verification and validation.

COMP 5611 Elementary Numerical Methods (3 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: COMP 5361; COMP 5511.

Description:

Error analysis and computer arithmetic. Numerical methods for solving linear systems, Gaussian elimination, LU decomposition. Numerical solution of non-linear equations, fixed point iterations, rate of convergence. Interpolations and approximations, Lagrange polynomials, divided differences, discrete least-square approximation, Legendre polynomials. Numerical integration, Newton-Cotes formulas, Romberg integration. Emphasis will be on the development of efficient algorithms.

Notes:

- Students who have completed COMP 361 may not take this course for credit.

Computer Science and Software Engineering Master's and PhD Courses

COMP 6231 Distributed System Design (4 credits)

Description:
Principles of distributed computing: scalability, transparency, concurrency, consistency, fault tolerance. Client-server interaction technologies: interprocess communication, sockets, group communication, remote procedure call, remote method invocation, object request broker, CORBA, web services. Distributed server design techniques: process replication, fault tolerance through passive replication, high availability through active replication, coordination and agreement transactions and concurrency control. Designing software fault-tolerant highly available distributed systems using process replication. Laboratory: two hours per week.

Component(s):
Lecture; Laboratory

COMP 6281 Parallel Programming (4 credits)

Description:
Migration from Von Neumann to parallel processing architectures: shared-memory and message-passing paradigms; massively parallel computers; recent trends in commodity parallel processing; clusters, multi-core, CPU-GPU based heterogeneous computing. Issues of memory consistency and load balancing. Parallel algorithms for shared-memory and message passing platforms; efficiency and scalability; issues of performance overhead. Parallel programming environments: parallel programming models; languages; software tools. Laboratory: two hours per week. A project is required.

Component(s):
Lecture; Laboratory

Notes:

- Students who have completed COMP 428 may not take this course for credit.

COMP 6311 Animation for Computer Games (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: COMP 6761 or equivalent.

Description:
Introduction to the algorithms, data structures, and techniques used in modelling and rendering dynamic scenes. Topics include principles of traditional animation, production pipeline, animation hardware and software, orientation representation and interpolation, modelling physical and articulated objects, forward and inverse kinematics, motion control and capture, key-frame, procedural, and behavioural animation, camera animation, scripting system, and free-form deformation. A project is required.

Component(s):
Lecture; Laboratory two hours per week

Notes:

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- Students who have completed COMP 477 may not take this course for credit.

COMP 6321 Machine Learning (4 credits)

Prerequisite/Corequisite:

Description:
Introduction to the fundamentals of machine learning. Linear models: linear and polynomial regression, overfitting, model selection, logistic regression, naive Bayes. Non-linear models: decision trees, instance-based learning, boosting, neural networks. Support vector machines and kernels. Computational learning theory. Experimental methodology, sources of error. Structured models: graphical models, deep belief networks. Unsupervised learning: k-means, mixture models, density estimation, expectation maximization, principle component analysis, eigenmaps and other dimensionality reduction methods. Learning in dynamical systems: hidden Markov models and other types of temporal/sequence models. Reinforcement learning. Survey of machine learning and its applications. A project is required.

Component(s):
Lecture; Laboratory two hours per week

COMP 6331 Advanced Game Development (4 credits)

Prerequisite/Corequisite:
Permission of the instructor is required.

Description:
Introduction to advanced aspects of computer games. Game engine design. Artificial Intelligence (AI): nonplayer character movement, coordinated movement, pathfinding, world representations; decision making; tactical AI, strategic AI, learning in games. Physicsbased techniques: collision detection and response. Networked gaming: multiplayer games, networking and distributed game design, mobile gaming. Improving realism: cut scenes, 3D sound. A project is required.

Component(s):
Lecture; Laboratory two hours per week

Notes:

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- Students who have completed COMP 476 may not take this course for credit.

COMP 6341 Computer Vision (4 credits)

Description:
This course introduces basic techniques and concepts in computer vision including image formation, grouping and fitting, geometric vision, recognition, perceptual organization, and the state-of-the art software tools. Students learn fundamental algorithms and techniques, and gain experience in programming vision-based components; in particular, how to program in OpenCV, a powerful software interface used to process data captured from passive and active sensors. A project is required.

Component(s):
Lecture; Laboratory two hours per week.

Notes:

- Students who have received credit for COMP 691 (Computer Vision) may not take this course for credit.
- Students who have completed COMP 425 may not take this course for credit.

COMP 6351 Topics in Scientific Computation (4 credits)

Description:
Selected elements of numerical methods that are central to scientific computation. The precise contents of the course may differ somewhat from one offering to the next, but will include the following topics: An introduction to the numerical solution of nonlinear equations, continuation methods, numerical solution of initial value problems in ordinary differential equations, finite difference method, numerical stability theory, stiff equations, boundary value problems in ordinary differential equations, collocation methods, introduction to the numerical solution of partial differential equations, with emphasis on nonlinear diffusion problems. A project is required.

Component(s):
Lecture

COMP 6361 Numerical Analysis of Nonlinear Equations (4 credits)

Description:
An introduction to numerical algorithms for nonlinear equations, including discrete as well as continuous systems. The emphasis is on computer-aided numerical analysis rather than numerical simulation. This course is suitable for scientists and engineers with a practical interest in nonlinear phenomena. Topics include computational aspects of: homotopy and continuation methods, fixed points and stationary solutions, asymptotic stability, bifurcations, periodic solutions, transition to chaos, conservative systems, travelling wave solutions, discretization techniques. A variety of applications will be considered. Numerical software packages will be available. A project is required.

Component(s):
Lecture

COMP 6371 Immersive Technologies (4 credits)

Description:

This course covers the fundamentals of immersive technologies and offers a brief history and overview of immersive technologies. Students analyze case studies of interactive experiences using immersive technologies and identify the main challenges of the current state of the art. Furthermore, this course covers the fundamental principles of 3D graphics for creating virtual assets and environments, and basic concepts and technologies for interaction. A project is required.

Notes:

- Students who have completed COMP 475 may not take this course for credit.

COMP 6381 Geometric Modelling and Processing (4 credits)

(Also listed as COMP 438.)

Description:

This course exposes the students to the geometric modelling pipeline. It includes topics such as efficient mesh data structures such as half-edge and cornertable, digital differential geometry, spectral mesh processing, discrete modelling tools and analytic modelling tools (B-Splines, Bezier and subdivision surfaces), optimization-driven modelling and simulation, 3D shape acquisition, 3D printing and prototyping. Application-related topics are discussed such as smoothing, resampling, compression, as well as deep neural network architectures for geometric data and modeling problems. A project is required.

Component(s):

Lecture; Laboratory two hours per week.

Notes:

- Students who have received credit for COMP 438 may not enrol in this course.

COMP 6411 Comparative Study of Programming Languages (4 credits)

Description:

Comparison of several high-level programming languages with respect to application areas, design, efficiency, and ease of use. The selected languages will demonstrate programming paradigms such as functional, logical, and scripting. Static and dynamic typing. Compilation and interpretation. Advanced implementation techniques. A project is required.

Component(s):

Lecture

COMP 6421 Compiler Design (4 credits)

Description:
Compiler organization and implementation: lexical analysis and parsing, syntax-directed translation, code optimization. Run-time systems. A project is required.

Component(s):
Lecture; Laboratory

Notes:

- Students who have completed COMP 442 COMP 442 may not take this course for credit.

COMP 6461 Computer Networks and Protocols (4 credits)

Description:
Direct link networks: encoding, framing, error detection, flow control, example networks. Packet switching and forwarding: bridges, switches. Internetworking: Internet Protocol, routing, addressing, IPv6, multicasting, mobile IP. End-to-end protocols: UDP, TCP. Network security concepts. Application-level protocols.

Component(s):
Lecture; Laboratory two hours per week

COMP 6481 Programming and Problem Solving (4 credits)

Prerequisite/Corequisite:
Only MApCompSc and MEng (SOEN) students may take this course for credit.

Description:
This course provides an overview of programming, problem solving, widely-used data structures and the design of fundamental and advanced algorithms using object oriented programming. Students will learn about arrays, lists, and the underlying concepts of iterators; sorting and searching algorithms; software testing including boundary and unit testing; complexity analysis; recursion; trees and tree traversal algorithms; maps and hash tables; search trees; and graphs and graph-based algorithms. For a passing grade, the student must pass one or more computer-based Programming Competency Tests.

Component(s):
Tutorial 1 hour per week; Laboratory 3 hours per week

Notes:

- Students who have received credit for COMP 5481 may not take this course for credit.

COMP 6521 Advanced Database Technology and Applications (4 credits)

Description:
Review of standard relational databases, query languages. Query processing and optimization. Parallel and distributed databases. Information integration. Data warehouse systems. Data mining and OLAP. Web databases and XML Active and logical databases, spatial and multimedia data management.

Component(s):
Lecture; Laboratory two hours per week

COMP 6531 Foundations of the Semantic Web (4 credits)

Description:
Web markup languages, World Wide Web Consortium (W3C) standards, Extensible Markup Language (XML) Resource Description Framework (RDF), schema for markup languages, Semantic Web, ontology development, markup languages for ontologies, Web Ontology Language (OWL), logical foundations of ontologies, description logics, reasoning with ontologies. A project is required.

COMP 6591 Introduction to Knowledge-Base Systems (4 credits)

Description:
Review of first-order logic, relational algebra, and relational calculus. Fundamentals of logic programming. Logic for knowledge representation. Architecture of a knowledge-base system. Fundamentals of deductive databases. Top-down and bottom-up query processing. Some important query processing strategies and their comparison. Project or term paper on current research topics.

Component(s):
Lecture; Reading

COMP 6621 Discrete Mathematics of Paul Erdös (4 credits)

Description:
Introduction to the methods and proof techniques of Paul Erdös that are particularly applicable to Computer Science. Proof of Bertrand's postulate. The Erdös-Szekeres and the de Bruijn-Erdös theorems. Ramsey's theorem and Ramsey numbers. Van der Waerden's theorem and Van der Waerden numbers. Delta-systems and a proof of the Erdös-Lovász conjecture. The Erdös-Ko-Rado theorem. Extremal graph theory. Random graphs and graph colouring. The probabilistic method and its applications in theoretical Computer Science. A project is required.

Component(s):
Lecture

COMP 6631 Large-Scale Optimization (4 credits)

Description:

Mathematical modelling of large-scale optimization models. Design and implementation of large-scale optimization techniques: decomposition methods (Benders, Dantzig-Wolfe, Lagrangian Relaxation, Column Generation), branch-and-price techniques. Large-scale linear and non-linear programming techniques for network optimization and integer/discrete programming. Techniques for nonlinear non-convex continuous optimization: branch-and-bound methods, DC (difference of convex functions) programming, bilinear and biconvex optimization. Heuristics and meta-heuristics. A project is required.

Component(s):

Reading

Notes:

- Students who have received credit for this topic under a COMP 691 number may not take this course for credit.

COMP 6641 Theory of Computation (4 credits)

Description:

General properties of algorithmic computations. Turing machines, universal Turing machines. Turing computable functions as a standard family of algorithms. Primitive recursive functions. Church's thesis, recursive sets. Recursively enumerable sets and their properties. Rice's theorem. Time and space complexity measures. Hierarchy of complexity measures. Advanced topics in complexity theory. A project is required.

Component(s):

Reading

COMP 6651 Algorithm Design Techniques (4 credits)

Description:

Mathematical preliminaries; Empirical and theoretical measures of algorithm efficiencies; Optimization and combinatorial techniques and algorithms including greedy algorithms, dynamic programming, branch-and-bound techniques and graph network algorithms; Amortized complexity analysis; String matching algorithms; NP-complete problems and approximate solutions; Probabilistic algorithms. A project is required.

Component(s):

Lecture

COMP 6661 Combinatorial Algorithms (4 credits)

Description:

Representation and generation of combinatorial objects; search techniques; counting and estimation. Projects on selected applications from combinatorics and graph theory.

Component(s):
Lecture

COMP 6711 Computational Geometry (4 credits)

Description:
Efficient algorithms and data structures to solve geometric problems. Problems discussed include convex hulls, line intersections, polygon triangulation, point location, range searching, Voronoi diagrams, Delaunay triangulations, interval trees and segment trees, arrangements, robot motion planning, binary space partitions, quadtrees, and visitility. Algorithmic methods include plane sweep, incremental insertion, randomization, divide and conquer. Emphasis will be given to computation and complexity, with applications in computer graphics, computer aided design, geographic information systems, networks, mesh generation, databases, and robot motion planning. A project is required.

Component(s):
Lecture

COMP 6721 Applied Artificial Intelligence (4 credits)

Description:
The course covers heuristic and adversarial searches for concrete applications. It then discusses automated reasoning, advanced knowledge representation and dealing with uncertainly for Artificial Intelligence applications. Finally, it introduces autoencoders, recurrent neural networks and sequence to sequence models. A project is required.

Component(s):
Lecture; Laboratory two hours per week.

Notes:

- Students who have completed COMP 472 may not take this course for credit.

COMP 6731 Pattern Recognition (4 credits)

Description:
Pre-processing. Feature extraction and selection. Similarity between patterns and distance measurements. Syntactic and statistical approaches. Clustering analysis. Bayesian decision theory and discriminant functions. Clustering and classification techniques. Applications. A project is required.

Component(s):
Lecture; Laboratory two hours per week.

Notes:

- Students who have completed COMP 473 may not take this course for credit.

COMP 6741 Intelligent Systems (4 credits)

Description:
Knowledge representation and reasoning. Uncertainty and conflict resolution. Design of intelligent systems. Grammar-based, rule-based, and blackboard architectures. A project is required.

Component(s):
Lecture; Laboratory two hours per week

Notes:

- Students who have completed COMP 474 may not take this course for credit.

COMP 6751 Natural Language Analysis (4 credits)

Description:
Introduction to natural language processing. Structure of English. Grammars and parsing. Lexical and compositional semantics. Pragmatic issues. Applications in text mining and information extraction. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for COMP 7741 before September 2011 may not take this course for credit.

COMP 6761 Advanced 3D Graphics for Game Programming (4 credits)

Description:
Fundamental algorithms, techniques, and software engineering principles for 3D graphics. Introduction to real-time graphics application architecture; review of basic 3D concepts of modelling, viewing, and rendering. 3D graphics functions, pipeline, and performance. Hierarchical 3D graphics. Algorithms for occlusion culling, collision detection, photorealism, shadows, and textures. Current trends and state-of-the-art graphics and physics algorithms.

Component(s):
Lecture; Laboratory two hours per week

COMP 6771 Image Processing (4 credits)

Description:
Digital image fundamentals; image enhancement: histogram processing, filtering in the spatial domain, filtering in the frequency domain; image restoration and reconstruction; image segmentation: line detection, Hough transform, edge detection and linking, thresholding, region splitting and merging; image compression; introduction to wavelet transform and multi-resolution processing. A project is required.

Component(s):
Lecture; Laboratory two hours per week.

Notes:

- Students who have completed COMP 478 may not take this course for credit.

COMP 6781 Statistical Natural Language Processing (4 credits)

Description:
The course covers robust methods to natural language processing (NLP) and their applications to manipulate large text collections. Topics covered in this course include: Zipf's law, information retrieval, statistical machine translation, N-gram language models and smoothing techniques, word sense disambiguation, part-of-speech tagging and probabilistic grammars and parsing. A project is required.

Component(s):
Lecture

COMP 6791 Information Retrieval and Web Search (4 credits)

Description:
Basics of information retrieval (IR): Boolean, vector space and probabilistic models. Tokenization and creation of inverted files. Weighting schemes. Evaluation of IR systems: precision, recall, E-measure. Relevance feedback and query expansion. Application of IR to Web search engines: XML, link analysis, PageRank algorithm. Text categorization and clustering techniques as used in spam filtering. A project is required.

Component(s):
Lecture; Laboratory two hours per week

Notes:

- Students who have completed COMP 479 may not take this course for credit.

COMP 6811 Bioinformatics Algorithms (4 credits)

Description:
The principal objectives of the course are to cover the major algorithms used in bioinformatics; sequence alignment, multiple sequence alignment, phylogeny; classifying patterns in sequences; secondary structure prediction; 3D structure prediction; analysis of gene expression data. This includes dynamic programming, machine learning, simulated annealing, and clustering algorithms. Algorithmic principles will be emphasized. A project is required.

Component(s):
Lecture; Reading

COMP 6821 Bioinformatics Databases and Systems (4 credits)

Description:
The principal objectives of the course are to survey the needs of bioinformatics for data management, knowledge management, and computational support; to provide in-depth description of an example of each kind of database and system; and to introduce advanced database technology and software technology relevant to the needs of bioinformatics. A project is required.

Component(s):
Reading

COMP 691 Topics in Computer Science I (4 credits)

Description:
Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

Component(s):
Lecture; Laboratory; Reading

COMP 6961 Graduate Seminar in Computer Science (1 credits)

Description:
Students will have to attend a selected set of departmental seminars and submit a comprehensive report on the topics presented in one of the seminars. This course is graded on a pass/fail basis.

Component(s):
Seminar

COMP 6971 Project and Report I (4 credits)

Prerequisite/Corequisite:

Students must have completed 16 credits in the Master's in Applied Computer Science (MApCompSc) program prior to enrolling. A CGPA of 3.40 or greater and permission of the Department is required. Before registration for a project course, students must obtain written consent of a faculty member who acts as advisor for the report. A form for this consent is available in the Department of Computer Science and Software Engineering.

Description:

The purpose of the project report is to provide students in the Master's in Applied Computer Science (MApCompSc) program with an opportunity to carry out independent project work and to present it in an acceptable form. A four-credit report is due on the last day of classes of the term (fall, winter, summer) in which students are registered. Students are expected to have a preliminary version of their report approved by their advisor before its final submission. On or before the submission deadline, students must submit three copies of the report to their advisor, who grades the report. One copy of the report is returned to the student, one retained by the advisor, and one by the Department. The report, including an abstract, must be suitably documented and illustrated, should be at least 5000 words in length, must be typewritten on one side of 21.5 cm by 28 cm white paper of quality, and must be enclosed in binding. Students are referred to the latest edition of Form and Style: Thesis, Report, Term Papers by Campbell, Ballou and Slade, published by Houghton Mifflin (Academic).

Component(s):

Lecture

Notes:

- Students who have received credit for SOEN 6951, SOEN 6971, ENCS 6921, or ENCS 6931 may not take this course for credit.

COMP 6981 Project and Report II (4 credits)

Prerequisite/Corequisite:

The following course must be completed previously: COMP 6971.

Description:

The purpose of the project report is to provide students in the Master's in Applied Computer Science (MApCompSc) program with an opportunity to carry out a second independent project and to present it in an acceptable form. Project 8 hours per week.

Component(s):

Lecture

Notes:

- Students who have received credit for SOEN 6951, SOEN 6971, ENCS 6921, or ENCS 6931 may not take this course for credit.

COMP 7241 Parallel Algorithms and Architectures (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMP 6281. If prerequisites are not satisfied, permission of the instructor is required.

Description:
Parallel architectures; memory organization, interconnection structures, data routing techniques. Parallel algorithms; paradigms and design techniques, complexity analysis, algorithms for various computation models. A project is required.

Component(s):
Lecture

COMP 7251 Mobile Computing and Wireless Networks (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMP 6461.

Description:
Introduction to mobile computing and wireless networks: local (LAN), personal (PAN) and metropolitan (MAN). Mobile ad hoc networks and sensor networks. Algorithms and protocols for medium access, routing, topology control, and reliable transport. A project is required.

Component(s):
Lecture

COMP 7451 Semantics of Programming Languages (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMP 6411.

Description:
The need for semantic descriptions of programming languages. Classification of semantics: operational, axiomatic, model-theoretic, algebraic, denotational. Classification of languages: procedural, functional, logic, equational. Applications: verification, construction, language design, temporal logic for distributed systems, semantics for advanced languages.

Component(s):
Lecture

COMP 7521 Cryptography and Data Security (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMP 6651.

Description:

Traditional cryptography. Information theory. Private-key (symmetric-key) and public-key (asymmetric-key) cryptographic algorithms. Advanced Encryption Standard (Rijndael). Cryptographic hash functions. Digital signatures. Data-origin authentication and data integrity. Entity authentication. Key distribution, management, recovery, and exhaustion. Authentication protocols. Security services (confidentiality, authentication, integrity, access control, non-repudiation, and availability) and mechanisms (encryption, data-integrity mechanisms, digital signatures, keyed hashes, access-control mechanisms, challenge-response authentication, traffic padding, and routing control). Projects will be offered in selected topics in cryptography.

Component(s):
Lecture

COMP 7531 Database Systems Principles (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMP 6521.

Description:
Database models. Algebraic, logical, and deductive database languages. Query equivalence and optimization. Query rewriting, information integration and data exchange. Incomplete information and complex values. Introduction to current research topics. A project is required.

Component(s):
Lecture; Reading

COMP 7651 Advanced Analysis of Algorithms (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMP 6651.

Description:
Amortized analysis of algorithms, NP-hardness and approximation algorithms, online algorithms, randomized algorithms. Selected topics of current interest. Project or term paper.

Component(s):
Reading

COMP 7661 Advanced Rendering and Animation (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMP 6761.

Description:
Advanced concepts in rendering and animation with emphasis on computational techniques for synthesizing complex realistic images, both static and dynamic. Topics include: overview of computer graphics techniques in games, cinema, and engineering; realistic rendering methods in real time; animation techniques including physics-based animation. A project is required.

Component(s):
Lecture

COMP 7751 Advanced Pattern Recognition (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMP 6731.

Description:
Pattern recognition principles; modern methods in digitization and data acquisition; advanced topics in feature extraction and selection; principal component analysis and clustering techniques; multiple classifiers and expert systems; advanced topics in neural networks in pattern recognition, performance evaluation and error reduction. Applications. A project is required.

Component(s):
Lecture

COMP 7781 Advanced Image Processing (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COMP 6771. If prerequisites are not satisfied, permission of instructor is required.

Description:
Digital image processing; segmentation morphological processing; wavelet transforms and multi-resolution analysis; partial differential equation approach; variational methods; diffusion and shock filters; Markov random field and Bayesian inference; energy minimization framework: snakes, active contours, Mumford-Shah model, level set method; numerical implementation; applications; image inpainting; registration; and document processing. A project is required.

Component(s):
Lecture

COMP 791 Topcis in Computer Science II (4 credits)

Component(s):
Lecture

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated b changes to the course title in the graduate class schedule.

COMP 7921 Master's Research and Thesis (29 credits)

Description:
Students who are admitted before June 1, 2001 may take this course to satisfy the requirements for the Master's Research Thesis.

Component(s):
Thesis Research

COMP 7941 Master's Research and Thesis (29 credits)

Description:
The thesis represents the results of the student's independent work after admission to the program. The student submits a thesis based upon this work and defend it in an oral examination. The thesis is evaluated by an Examining Committee which consists of the student's supervisor(s), and two (2) examiners, one of whom may be external to the student's department. The Committee is approved by the Graduate Program Director of the student's department.

Component(s):
Thesis Research

COMP 8901 Doctoral Research and Thesis (70 credits)

Description:
Students are required to plan and carry out a suitable research, development, or design project, which leads to an advance in knowledge. The thesis involves a literature review of the field of research, and reports on the planning and execution of innovative and original research conducted under supervision of a faculty member. The thesis is the object of an oral defense, under the guidelines of the School of Graduate Studies. Theses will be examined by a committee consisting of the student's supervisory committee, an external examiner, and other examiners as approved by the GCS Dean of Graduate Studies.

Component(s):
Thesis Research

SOEN 6011 Software Engineering Processes (4 credits)

Description:
Introduction to software engineering concepts, modern management processes and software lifecycles. Tracking of software requirements and development through issue trackers. Version control practices include integration of feature branching. Validation practices including testing frameworks and code review. Continuous integration and build environments. A practical component on setting up a development environment similar to those used in professional environments. Case studies of successful management processes from open source projects and industry. A project is required.

Component(s):
Lecture; Reading

SOEN 6021 Software Re-engineering (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: SOEN 6461. If prerequisites are not satisfied, permission of instructor is required.

Description:
This course introduces software re-engineering, software architecture recovery and reconstruction, and reflexion models. Students use development history to support reengineering, and are exposed to the latest empirical studies on software reengineering and software metrics applied to software re-engineering. Also, students learn how to apply various software re-engineering patterns and software migration strategies. A project is required.

Notes:

- Students who have received credit for SOEN 691 (Software Re-engineering) may not take this course for credit.

SOEN 6111 Big Data Analytics (4 credits)

Description:
This course focuses on the fundamentals of big data terminology, concepts and technologies. For the technical aspects of big data management systems, the course focuses on big data engines, programming models and file systems. Specific techniques covered include supervised classification, recommender systems, data clustering, frequent itemsets mining, similarity search, data streams and graph analysis. A project is required.

Component(s):
Laboratory two hours per week

Notes:

- Students who have completed SOEN 471 may not take this course for credit.

SOEN 6211 Semantic Computing (4 credits)

Description:
System analysis, architecture, and engineering for semantic software products. Text Mining systems and their architectures. Tagging and Tag Analysis. Recommender Systems and Collaborative Filtering. Crawling the Blogosphere and Opinion Mining. Applying Clustering, Machine Learning, Classification, and Regression. The Web of Data and Semantic Web Technologies: RDF, RDFS, SPARQL. Linked Open Data (LOD). Design and Re-Use of Semantic Web Vocabularies and Ontologies. Semantic Desktops and Semantic Web Information Systems. Semantic Application Development. Application case studies in biomedical research, software development, business intelligence, online gaming, e-commerce and e-science. Research paper seminar. Empirical evaluation methodologies for semantic systems. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under a SOEN 691 number may not take this course for credit.

SOEN 6311 Formal Methods (4 credits)

Description:
Components of formal systems: formal methods; levels of formalism. Integrating formal methods into the existing software life-cycle process model for a given project. Attributes of a formal specification language. Formal notations based on extended finite-state machines; case studies involving the design of user interfaces, reactive systems, and concurrent systems. Software development using formal methods, including tools for: type checking; debugging; verifying checkable properties; validation of refinements; and code generation from refinements. A project is required.

Component(s):
Lecture

SOEN 6431 Software Comprehension and Maintenance (4 credits)

Description:
The course addresses both technical and managerial views of software comprehension and software maintenance issues. Topics covered in this course include: cognitive models, software visualization, CASE tools, reverse engineering, static and dynamic source code analysis, software configuration management, and introduction to current research topics in software maintenance and program comprehension. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for COMP 6431 may not take this course for credit.

SOEN 6441 Advanced Programming Practices (4 credits)

Description:
Problems of writing and managing code. Managing code complexity and quality through a programming process. Self-documenting code, and documentation generation. Software configuration management. Best practices for writing unit tests to control code quality. Advanced practices such as multi-threading concurrency, code reuse, and fault tolerance. A project is required.

Component(s):
Lecture; Laboratory two hours per week.

SOEN 6461 Software Design Methodologies (4 credits)

Description:

Introduction to software design processes and their models. Representations of design/architecture. Software architectures and design plans. Design methods, object-oriented application frameworks, design patterns, design quality and assurance, coupling and cohesion measurements, design verification and documentation. A design project.

Component(s):

Lecture

Notes:

- Students who have received credit for COMP 6471 before September 2011 may not take this course for credit.

SOEN 6471 Advanced Software Architectures (4 credits)

Description:

Study of architectural view models, architectural styles and frameworks; Architectural case studies and extraction of concrete architecture; Architectural design patterns; Model Driven Architecture (MDA), Service Oriented Architecture (SOA). Domain specific architectures such as mobile and cloud computing. A project is required.

Component(s):

Lecture

SOEN 6481 Software Systems Requirements Specification (4 credits)

Description:

The requirements engineering (RE) process. Requirements engineering in different software lifecycle models. Problem analysis. Requirements elicitation. Requirements evaluation. Inconsistency management. Risk analysis. Requirements prioritization and negotiation. Requirements specification: natural language documentation, IEEE and ISO standards. Use cases. Agile processes and user stories. Introduction to formal specification: logics, formal languages. Requirements quality assurance. RE tools. Requirements evolution. Traceability. Domain modelling: UML, ontologies, domain-specific languages. Modelling behaviour. Acceptance criteria. Test cases. Cost models. A project is required.

Component(s):

Lecture

Notes:

- Students who have received credit for COMP 6481 may not take this course for credit.

SOEN 6491 Software Refactoring (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: SOEN 6461.

Description:
Topics include an introduction to preventive maintenance, design problems, and refactorings; techniques for the detection of design problems and refactoring opportunities; management of preventive maintenance: visualization, prioritization, ranking, and evolution tracking of design problems; empirical studies on refactoring activities and practices; implementation of source code analysis techniques and refactorings. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for SOEN 691 (Software Refactoring) may not take this course for credit.

SOEN 6501 Programming Competency Test (0 credits)

Description:
See Requirements for the Master's in Applied Computer Science (MApCompSc) or MEng (Software Engineering) sections.

Component(s):
Online

SOEN 6591 Software Mining and Analysis (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: SOEN 6431. If prerequisites are not satisfied, permission of the instructor is required.

SOEN 6611 Software Measurement (4 credits)

Description:
Role of measurement in Software Engineering, theoretical, technical and managerial views on software measurement. Representational theory of measurement. Theoretical validation of software measurement. Goal-driven measurement. Collecting and analyzing software engineering data. Software quality modelling and measuring. Testing and measurement. Reliability models. Functional size measurement methods. Effort estimation models and their usage in project management. Software measurement standards. Tool support. Case studies. A project is required.

Component(s):
Lecture

SOEN 6751 Human Computer Interface Design (4 credits)

Description:
Introduction to human computer interaction. User-centered design process. User modelling. Task analysis. User interface design knowledge (principles, guidelines and patterns). User interface prototyping. User interface evaluation. A project is required.

Component(s):
Lecture; Laboratory two hours per week.

Notes:

- Students who have received credit for COMP 6751 before September 2011 may not take this course for credit.

SOEN 6761 Multimedia Computing (4 credits)

Description:
This course covers the state-of-the-art technology for multimedia computing. The course topics will cover current media types, images, video, audio, graphics and 3D models in terms of algorithms and data structures for their capture, representation, creation, storage, archival, transmission, assembling, presentation and retrieval. This course will cover fundamental ideas in multimedia technology applicable to computer science and software engineering. A project is required.

Component(s):
Lecture

SOEN 6841 Software Project Management (4 credits)

Description:
Fundamental concepts of management activities, demonstrating how it can relate to software engineering and how the two can be mutually supportive throughout software development and maintenance. Overview of object-oriented development; software development processes; quality considerations; activity planning; risk management; monitoring and control; maintenance and evolution; issues of professional ethics and practice, and legal issues. A project is required.

Component(s):
Lecture

SOEN 6861 Services Computing: Foundations, Design and Implementations (4 credits)

Description:

System design with Service Oriented Architecture. Open standards for Web services. Development of SOAP (Service-Oriented Architecture and Programming) and RESTful (REpresentational State Transfer) services. Business process modelling and management. Service composition. Formal models for services. A project is required.

Component(s):
Reading

Notes:

- Students who have received credit for SOEN 691 (Services Computing: Foundations, Design and Implementations) may not take this course for credit.

SOEN 691 Topics in Software Engineering (4 credits)

Component(s):
Lecture; Laboratory; Reading

Notes:

- Subject matter will vary from term to term and from year to year. Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by the course title following the course number.

SOEN 6941 Software Engineering Project (4 credits)

SOEN 6951 Software Engineering Case Study (4 credits)

Description:
Students will complete a case study of a software project. Whenever possible, the project should be conducted in an industrial environment with the cooperation of the student's employer.

Component(s):
Lecture; Reading

Notes:

- Students who have received credit for SOEN 6971 or COMP 6971 may not take this course for credit.

SOEN 6971 Project and Report I (4 credits)

Prerequisite/Corequisite:
Students must have completed 16 credits prior to enrolling; A CGPA of 3.40 or greater; and permission of the Department is required.

Description:
The purpose of the project report is to provide students in the MEng (Software Engineering) program with an opportunity to carry out independent project work and to present it in an acceptable form. The project may consist of the following: Before registration for a project course, students must obtain written consent of a faculty member who acts as advisor for the report. A form for this consent is available in the Department of Computer Science and Software Engineering. A four-credit report is due on the last day of classes of the term (fall, winter, summer) in which students are registered. Students are expected to have a preliminary version of their report approved by their advisor before its final submission. On or before the submission deadline, students must submit three copies of the report to their advisor, who grades the report. One copy of the report is returned to the student, one retained by the advisor, and one by the Department. The report, including an abstract, must be suitably documented and illustrated, should be at least 5000 words in length, must be typewritten on one side of 21.5 cm by 28 cm white paper of quality, and must be enclosed in binding. Students are referred to the latest edition of Form and Style: Thesis, Report, Term Papers by Campbell, Ballou and Slade, published by Houghton Mifflin (Academic). Project: 8 hours per week.

Notes:

- Students who have received credit for COMP 6971 or SOEN 6951 may not take this course for credit.

SOEN 6981 Project and Report II (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: SOEN 6971.

Description:
Same course description as SOEN 6971.

Notes:

- Students who have received credit for ENCS 6921 or ENCS 6931 may not take this course for credit.

SOEN 7481 Software Verification and Testing (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: SOEN 6461; SOEN 6481.

Description:
Overview of current software engineering testing methods, techniques and standards for testing system implementations. Classical white-box testing; dataflow testing; classical black-box testing; integration testing; system testing. Testing measures; test plan. IEEE standard. Object-oriented testing. Test-driven development. Testing quality measures. Test reduction techniques. Techniques for test automation. Tools and techniques for formal verification of software system designs: model checking and theorem proving. A project is required.

Component(s):

Lecture

Notes:

- Students who have received credit for COMP 7481 may not take this course for credit.

SOEN 7761 Intelligent User Interfaces (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: SOEN 6751.

Description:
Intelligent systems and intelligent interfaces. A brief introduction to knowledge representation and reasoning. Creation and adaptation of user models. Software agents at the user interface. Applications of these concepts in the development of intelligent user interfaces. Adaptive user interfaces. Selected advanced topics, such as natural language interfaces, speech based user interfaces, and mobile user interfaces. Laboratory: two hours per week. A project is required.

Component(s):
Lecture; Laboratory

Notes:

- Students who have received credit for COMP 7761 before September 2011 may not take this course for credit.

SOEN 791 Topics in Software Engineering II (4 credits)

Component(s):
Lecture

Notes:

- Subject matter will vary from term to term and from year to year. Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by the course title following the course number.

SOEN 7941 Master's Research and Thesis (29 credits)

Description:
The thesis represents the results of the student's independent work after admission to the program. The student submits a thesis based upon this work and defend it in an oral examination. The thesis is evaluated by an Examining Committee which consists of the student's supervisor(s), and two (2) examiners, one of whom may be external to the student's department. The Committee is approved by the Graduate Program Director of the student's department.

Component(s):

Thesis Research

SOEN 8901 Doctoral Research and Thesis (70 credits)

Description:

Students are required to plan and carry out a suitable research, development, or design project, which leads to an advance in knowledge. The thesis involves a literature review of the field of research, and reports on the planning and execution of innovative and original research conducted under supervision of a faculty member. The thesis is the object of an oral defense, under the guidelines of the School of Graduate Studies. Theses will be examined by a committee consisting of the student's supervisory committee, an external examiner, and other examiners as approved by the GCS Dean of Graduate Studies.

Component(s):

Thesis Research

List of Engineering Courses by Topic Areas

E00 - Review/Make-up Courses

Students who lack the mathematics and systems background for graduate programs in engineering may be required to take this course. This course cannot be taken for credit towards the requirements of a graduate degree.

- ENCS 6001 Elements of Engineering Mathematics (3.00)

E01 - Mathematical Methods

- ENCS 6021 Engineering Analysis (4.00)
- ENCS 6111 Numerical Methods (4.00)
- ENCS 6141 Probabilistic Methods in Design (4.00)
- ENCS 6161 Probability and Stochastic Processes (4.00)
- ENCS 6181 Optimization Techniques I (4.00)
- ENCS 6191 Fuzzy Sets and Fuzzy Logic (4.00)

Note: The following courses are cross-listed: ENCS 6181 and ELEC 481.

E02 - Developments In Engineering

Note: Students may re-register for these courses, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

- ENCS 591 Topics in Engineering and Computer Science (4.00)
- ENCS 691 Topics in Engineering and Computer Science (4.00)
- ENGR 691 Topics in Engineering I (4.00)
- ENGR 791 Topics in Engineering II (4.00)
- BLDG 691 Topics in Building Engineering I (4.00)
- BLDG 791 Topics in Building Engineering II (4.00)
- CIVI 691 Topics in Civil Engineering I (4.00)
- CIVI 791 Topics in Civil Engineering II (4.00)
- COEN 691 Topics In Computer Engineering I (4.00)
- COEN 791 Topics In Computer Engineering II (4.00)
- ELEC 691 Topics in Electrical Engineering I (4.00)
- ELEC 791 Topics in Electrical Engineering II (4.00)
- INDU 691 Topics in Industrial Engineering (4.00)
- INSE 691 Topics in Information Systems Engineering (4.00)
- MECH 691 Topics in Mechanical Engineering I (4.00)
- MECH 791 Topics in Mechanical Engineering II (4.00)

Note: The following courses are cross-listed: CIVI 691; BLDG 6951.

E03 - Systems and Control

- COEN 6561 Foundations of Cyber-Physical Systems (4.00)
- ELEC 6031 Fault Tolerance and Resilience of Cyber-Physical Systems (4.00)
- ELEC 6041 Large-scale Control Systems (4.00)
- ELEC 6061 Real-time Computer Control Systems (4.00)
- ELEC 6091 Discrete Event Systems (4.00)
- ENGR 6071 Switched and Hybrid Control Systems (4.00)
- ENGR 6121 Control of Multi-Agent Systems (4.00)
- ENGR 6131 Linear Systems (4.00)
- ENGR 6141 Nonlinear Systems (4.00)

- ENGR 6412 Autonomy for Mobile Robots (4.00)
- ENGR 7121 Analysis and Design of Linear Multivariable Systems (4.00)
- ENGR 7131 Adaptive Control (4.00)
- ENGR 7181 Digital Control of Dynamic Systems (4.00)
- MECH 6681 Dynamics and Control of Nonholonomic Systems (4.00)

Note: The following courses are cross-listed:
COEN 6561 is cross-listed with COEN 422
ENGR 6131 is cross-listed with ELEC 481
ENGR 6421 is cross-listed with ELEC 473

E04 - Fluid Mechanics

- ENGR 6201 Fluid Mechanics (4.00)
- ENGR 6221 Microfluidic Systems (4.00)
- ENGR 6241 Hydrodynamics (4.00)
- ENGR 6251 The Finite Difference Method in Computational Fluid Dynamics (4.00)
- ENGR 6261 The Finite Element Method in Computational Fluid Dynamics (4.00)
- ENGR 6281 Modelling Turbulent Flows (4.00)
- ENGR 6291 Rheology (4.00)

E05 - Dynamics and Vibrations of Mechanical and Biomechanical Systems

- ENGR 6191 Introduction to Biomedical Engineering (4.00)
- ENGR 6301 Advanced Dynamics (4.00)
- ENGR 6311 Vibrations in Machines and Structures (4.00)
- MECH 6301 Vibration Problems in Rotating Machinery (4.00)
- MECH 6311 Noise and Vibration Control (4.00)
- MECH 6321 Optimum Design of Mechanical Systems (4.00)
- MECH 6341 Engineering Analysis of Smart Materials and Structures (4.00)
- MECH 6351 Modal Analysis of Mechanical Systems (4.00)
- MECH 6361 Mechanics of Biological Tissues (4.00)
- ENGR 7331 Random Vibrations (4.00)

Note: The following course is cross-listed: ENGR 6311.

E06 - Structural Mechanics

- ENGR 6151 Continuum Mechanics (4.00)
- ENGR 6501 Applied Elasticity (4.00)
- ENGR 6511 Fundamentals of Finite Element Analysis of Structures (4.00)
- ENGR 6541 Structural Dynamics (4.00)
- ENGR 6551 Theory of Elastic and Inelastic Stability (4.00)
- ENGR 6561 Theory of Plates and Shells (4.00)
- ENGR 6571 Energy Methods in Structural Mechanics (4.00)
- ENGR 6581 Introduction to Structural Dynamics (4.00)
- ENGR 7501 Advanced Finite Element Method in Structural Mechanics (4.00)

Note: The following courses are cross-listed: ENGR 6511 and BCEE 452; ENGR 6581 and BCEE 455

E07 - Energy Conversion

- BLDG 6951 Solar Building Modelling and Design (4.00)
- ENGR 6601 Principles of Solar Engineering (4.00)

- ENGR 6611 Equipment Design for Solar Energy Conversion (4.00)
- ENGR 6661 Solar Energy Materials Science (4.00)
- ENGR 6811 Energy Resources: Conventional and Renewable (4.00)

E08 - Academic Communication Skills

- ENCS 5721 Composition and Argumentation for Engineers (3.00)
- ENCS 6721 Technical Writing and Research Methods for Scientists and Engineers (3.00)

E09 - Professional Leadership Skills

- ENCS 6031 Cultures of Engineering Practice (4.00)
- ENCS 6041 Creativity, Innovation, and Critical Thinking (4.00)
- ENCS 6042 Communication Techniques for the Innovation Process (4.00)
- ENCS 6201 Ethics and Professionalism (1.00)
- ENCS 6821 Development and Global Engineering (4.00)
- ENCS 692 Topics in Engineering and Computer Science (1.00)

Note: Students may take ENCS 692 more than one time for credit, provided the subject matter is different each time.

Note: The following course is cross-listed: ENCS 6821 is cross-listed with ENCS 484.

E10 - Robotics

- ENGR 6411 Robotic Manipulators I: Mechanics (4.00)
- ENGR 7401 Robotic Manipulators II: Control (4.00)

Note: The following course is cross-listed: ENGR 6411.

E11 - Aeronautics and Astronautics

- ENGR 6421 Standards, Regulations and Certification (4.00)
- ENGR 6441 Materials Engineering for Aerospace (4.00)
- ENGR 6461 Avionic Navigation Systems (4.00)
- ENGR 6471 Integration of Avionics Systems (4.00)
- ENGR 6951 Seminar on Space Studies (4.00)
- ENGR 7201 Micro-Gravity Fluid Dynamics (4.00)
- ENGR 7461 Avionic Systems Design (4.00)
- ENGR 7961 Industrial Stage and Training (6.00)
- MECH 6091 Flight Control Systems (4.00)
- MECH 6111 Gas Dynamics (4.00)
- MECH 6121 Aerodynamics (4.00)
- MECH 6161 Gas Turbine Design (4.00)
- MECH 6791 Aircraft Hydro-Mechanical and Fuel Systems (4.00)
- MECH 6891 Aircraft Pneumatic and Electrical Power Systems (4.00)
- MECH 6941 Concurrent Engineering in Aerospace Systems (4.00)
- MECH 6961 Aerospace Case Study I (3.00)
- MECH 6171 Turbomachinery and Propulsion (4.00)
- MECH 6231 Helicopter Flight Dynamics (4.00)
- MECH 6241 Operational Performance of Aircraft (4.00)
- MECH 6251 Space Flight Mechanics and Propulsion Systems (4.00)
- MECH 6471 Aircraft Structures (4.00)

Note: The following courses are cross-listed: ENGR 6471 and AERO 483; MECH 6111 and MECH 461; MECH 6121 and AERO 464,

MECH 6161 and AERO 465; MECH 6171 and AERO 462; MECH 6791 and MECH 471; MECH 6891 and AERO 472.

E12 - Industrial Engineering

- INDU 6111 Theory of Operations Research (4.00)
- INDU 6121 Applied Optimization (4.00)
- INDU 6131 Graph Theory with System Applications (4.00)
- INDU 6141 Logistics Network Models (4.00)
- INDU 6151 Decision Models in Service Sector (4.00)
- INDU 6161 Design and Operations of Supply Chain Networks (4.00)
- INDU 6211 Production Systems and Inventory Control (4.00)
- INDU 6221 Lean Enterprise (4.00)
- INDU 6231 Scheduling Theory (4.00)
- INDU 6241 Lean Manufacturing (4.00)
- INDU 6251 Facilities Planning and Warehouse Operations (4.00)
- INDU 6310 Applied Probability and Statistics for Engineers (4.00)
- INDU 6311 Discrete System Simulation (4.00)
- INDU 6321 Introduction to Six Sigma (4.00)
- INDU 6331 Advanced Quality Control (4.00)
- INDU 6341 Advanced Concepts in Quality Improvement (4.00)
- INDU 6351 System Reliability (4.00)
- INDU 6361 Discrete Optimization (4.00)
- INDU 6371 Stochastic Optimization (4.00)
- INDU 6381 Applications of Reliability Engineering (4.00)
- INDU 6391 Reliability and Maintenance for Design and Manufacturing (4.00)
- INDU 6411 Human Factors Engineering (4.00)
- INDU 6421 Systems Safety Engineering and Management (4.00)
- INDU 6521 Quantitative Methods in Healthcare Systems (4.00)
- INDU 6611 Applied Industrial Systems Analytics (4.00)

Note: The following courses are cross-listed: INDU 6141 and INDU 342; INDU 6151 and INDU 466; INDU 6321 and INDU 441; INDU 6341; INDU 6411 and INDU 412,

E21 - Integrative Studies for Building Engineering

- BLDG 6111 Fundamentals of Smart Buildings Operation (4.00)
- BLDG 6231 Applications of Artificial Intelligence in Building and Civil Engineering (4.00)
- BLDG 6241 Building Information Modelling in Construction (4.00)
- BLDG 6561 Building Economics I (4.00)
- BLDG 6571 Project Management (4.00)
- BLDG 6581 Decision Analysis (4.00)
- BLDG 6631 Fundamentals of Facility Management (4.00)
- BLDG 6641 Modular and Off-site Construction (4.00)
- BLDG 6861 Simulations and Design of Construction Operations (4.00)
- BLDG 7511 Integrated Building Design (4.00)

Note: The following courses are cross-listed: BLDG 6241 and BLDG 480; BLDG 6631 and BLDG 481; BLDG 6861 and BCEE 466.

E22 - Building Science

- BLDG 6541 Thermal Analysis in Buildings (4.00)
- BLDG 6601 Building Enclosure (4.00)
- BLDG 6611 Building Science (4.00)

- BLDG 6621 Non-structural Building Materials (4.00)
- BLDG 6622 Durability of Building Materials and Components (4.00)
- BLDG 6651 Fire and Smoke Control in Buildings (4.00)
- BLDG 6661 Hygrothermal Performance of the Building Envelope (4.00)
- BLDG 6671 Diagnostics and Rehabilitation of Building Envelope (4.00)

Notes: The following courses are cross-listed: BLDG 6621 and BLDG 462; BLDG 6651 and BLDG 465; BLDG 6671 and BLDG 484.

E23 - Building Environment

- BLDG 6701 Building Environment (4.00)
- BLDG 6711 Mechanical Systems in Building (4.00)
- BLDG 6721 Building Acoustics (4.00)
- BLDG 6731 Building Illumination and Daylighting (4.00)
- BLDG 6741 HVAC Control Systems (4.00)
- BLDG 6751 Indoor Air Quality and Ventilation (4.00)
- BLDG 6761 Intelligent Buildings (4.00)
- BLDG 6781 Energy Management in Buildings (4.00)
- BLDG 6791 Thermal Building Simulation (4.00)
- BLDG 7401 Dispersion of Building Exhaust (4.00)

Note: The following courses are cross-listed: BLDG 6721 and BLDG 473; BLDG 6731 and BLDG 474; BLDG 6751 and BLDG 475.

E24 - Construction Management

- BLDG 6801 Construction Planning and Control (4.00)
- BLDG 6811 Labour and Industrial Relations in Construction (4.00)
- BLDG 6821 Legal Issues in Construction (4.00)
- BLDG 6831 Construction Processes (4.00)
- BLDG 6851 Project Cost Estimating (4.00)
- BLDG 6921 Trenchless Technology for Rehabilitation Works (4.00)
- BLDG 7811 Project Acquisition and Control (4.00)
- BLDG 7831 Building Economics II (4.00)
- BLDG 7841 Information Technology Applications in Construction (4.00)
- BLDG 7861 Business Practices in Construction (4.00)
- BLDG 7871 Construction Equipment Management (4.00)
- CIVI 6711 Asset Management for Sustainable Civil Infrastructure (4.00)
- CIVI 6721 Infrastructure Systems Modeling and Simulation (4.00)
- CIVI 6731 Big Data Analytics for Smart Cities (4.00)

Note: The following courses are cross-listed: BLDG 6801 and BCEE 465; BLDG 6811 and BCEE 491; BLDG 6821 and BCEE 493; BLDG 6831 and BCEE 492; BLDG 6851 and BCEE 464

E31 - Structural Engineering

- BLDG 6061 Structural Systems for Buildings (4.00)
- BLDG 6071 Wind Engineering and Building Aerodynamics (4.00)
- CIVI 6001 Advanced Reinforced Concrete (4.00)
- CIVI 6011 Pre-cast and Pre-stressed Concrete Structures (4.00)
- CIVI 6021 Durability of Concrete Materials (4.00)
- CIVI 6031 Seismic Assessment and Retrofit of Structures (4.00)
- CIVI 6051 Design of Industrial Structures (4.00)
- CIVI 6061 Structural Health Monitoring (4.00)
- CIVI 6071 Advanced Steel Structures Design (4.00)

- CIVI 6931 Civil Infrastructure Rehabilitation (4.00)
- CIVI 7001 Earthquake Engineering (4.00)

E32 - Bridge Engineering

- CIVI 6101 Planning and Design of Bridges (4.00)
- CIVI 7111 Theory and Design of Modern Bridge Systems (4.00)

E33 - Water Resources

- CIVI 6301 Hydrology (4.00)
- CIVI 6331 Hydraulic Engineering (4.00)
- CIVI 6381 Hydraulic Structures (4.00)
- CIVI 7311 Advanced Analysis of Groundwater Flow and Contamination (4.00)

Note: The following courses are cross-listed:
- CIVI 6331 Hydraulic Engineering (4.00)and CIVI 484; CIVI 6301 and CIVI 483.

E34 - Transportation Engineering

- CIVI 6401 Transportation Systems Analysis (4.00)
- CIVI 6411 Urban Transportation Planning (4.00)
- CIVI 6441 Traffic Engineering (4.00)
- CIVI 6451 Pavement Design (4.00)
- CIVI 6461 Pavement Management Systems (4.00)

Note: The following courses are cross-listed: CIVI 6411 and CIVI 494.

E35 - Geotechnical Engineering

- CIVI 6501 Foundation Engineering (4.00)
- CIVI 6511 Earth Structures and Slope Stability (4.00)
- CIVI 6521 Soil Behaviour (4.00)
- CIVI 6531 Soil Testing and Properties (4.00)

Note CIVI 6501 is cross-listed with CIVI 435.

E36 - Industrial Waste Management

- CIVI 6481 Sustainable Management of Industrial Waste (4.00)
- CIVI 6491 Engineering Aspects of Site Remediation (4.00)
- CIVI 6631 Hazardous Material Management and Transportation (4.00)
- CIVI 6661 Environmental Impact Assessment (4.00)
- CIVI 6671 Fate and Transport of Contaminants in the Environment (4.00)

Note: The following courses are cross-listed: CIVI 6491 and CIVI 469; CIVI 6661 and CIVI 464.

E37 - Environmental Engineering

- CIVI 6601 Modelling in Building and Environmental Engineering (4.00)
- CIVI 6611 Environmental Engineering (4.00)
- CIVI 6621 Engineering Aspects of Biological Treatment of Water and Air (4.00)
- CIVI 6641 Unit Operations in Environmental Engineering (4.00)
- CIVI 6651 Water Pollution and Control (4.00)
- CIVI 6666 Climate Change in Engineering Practice (4.00)

- CIVI 6681 Environmental Nanotechnology (4.00)
- CIVI 6691 Greenhouse Gases and Control (4.00)
- CIVI 6901 Selected Topics in Civil Engineering I (4.00)

Note: The following courses are cross-listed:
CIVI 6641 and CIVI 466; CIVI 6651 and 465.

E42 - Communication Systems and Networks

- COEN 6841 Internet of Things (4.00)
- COEN 6851 Software-Defined Networking (4.00)
- COEN 6861 Higher Layer Telecommunications Protocols (4.00)
- ELEC 6111 Detection and Estimation Theory (4.00)
- ELEC 6131 Information Theory and Error Control Coding (4.00)
- ELEC 6141 Wireless Communications (4.00)
- ELEC 6151 Information Theory and Source Coding (4.00)
- ELEC 6171 Modelling and Analysis of Telecommunications Networks (4.00)
- ELEC 6181 Real-time and Multimedia Communication over Internet (4.00)
- ELEC 6191 Wireless Sensor and Actuator Networks (4.00)
- ELEC 6821 Fundamentals of Network Security and Management (4.00)
- ELEC 6831 Digital Communications (4.00)
- ELEC 6841 Advanced Digital Communications (4.00)
- ELEC 6851 Telecommunications Networks (4.00)
- ELEC 6871 Fiber-Optic Communication Systems and Networks (4.00)
- ELEC 6881 Fundamentals and Applications of MIMO Communications (4.00)
- ELEC 6891 Broadcast Signal Transmission (4.00)
- ELEC 7151 Broadband Communications Networks (4.00)
- ENCS 6811 Optical Networking: Architectures and Protocols (4.00)

Note: The following courses are cross-listed:
COEN 6841 is cross-listed with COEN 446
ELEC 6821 is cross-listed with ELEC 465
ELEC 6891 is cross-listed with ELEC 470
COEN 6851 is cross-listed with COEN 447

E43 - Micro-Devices and Fabrication Processes

- ELEC 6221 Solid State Devices (4.00)
- ELEC 6231 Design of Integrated Circuit Components (4.00)
- ELEC 6241 VLSI Process Technology (4.00)
- ELEC 6251 Microtransducer Process Technology (4.00)
- ELEC 6261 Optical Devices for High-Speed Communications (4.00)
- ELEC 6271 Nanoscience and Nanotechnology: Opto-Electronic Devices (4.00)
- ELEC 6281 Principles of Solid State Nanodevices (4.00)
- ELEC 6291 Radiation Detectors for Medical Imaging (4.00)

Note: the following courses are cross-listed:
ELEC 6221, is cross-listed with ELEC 421
ELEC 6231 is cross-listed with ELEC 422
ELEC 6241 is cross-listed with ELEC 424

E44 - Fields, Waves and Optoelectronics

- ELEC 6301 Advanced Electromagnetics (4.00)
- ELEC 6311 Radiation and Scattering of Waves (4.00)
- ELEC 6341 Antennas (4.00)
- ELEC 6351 Modern Antenna Theory (4.00)
- ELEC 6361 Acoustics (4.00)
- ELEC 6371 Design of Wireless RF Systems (4.00)
- ELEC 6381 Techniques in Electromagnetic Compatibility (4.00)
- ELEC 6391 Microwave Engineering (4.00)

Note: The following courses are cross-listed: ELEC 6341; ELEC 6361; ELEC 6391 and ELEC 453.

E45 - Electrical Power Engineering

- ELEC 6411 Power Electronics I (4.00)
- ELEC 6421 Renewable Energy Systems (4.00)
- ELEC 6431 Advanced Electrical Machines and Drives (4.00)
- ELEC 6461 Power Electronics II (4.00)
- ELEC 6471 Hybrid Electric Vehicle Power System Design and Control (4.00)
- ELEC 6481 Computer-Aided Analysis and Design of Electric Machines (4.00)
- ELEC 6491 Controlled Electric Drives (4.00)
- ELEC 7441 Design of Power Electronic Circuits (4.00)
- ELEC 7451 Power System Compensation (4.00)

Note: The following courses are cross-listed: ELEC 6411 and ELEC 433, ELEC 6421 and ELEC 483; ELEC 6471 and ELEC 439.

E47 - Signal Processing

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- ELEC 6601 Digital Signal Processing (4.00)
- ELEC 6611 Digital Filters (4.00)
- ELEC 6621 Digital Waveform Compression (4.00)
- ELEC 6631 Video Processing and Recognition (4.00)
- ELEC 6641 Two-dimensional Signal and Image Processing (4.00)
- ELEC 6651 Advanced Signal Processing (4.00)
- ELEC 6661 Medical Image Processing (4.00)
- ELEC 6671 Biological Signal Processing (4.00)

Note: The following courses are cross-listed:
ELEC 6631 is cross-listed with ELEC 447;
ELEC 6661 is cross-listed with ELEC 444;
ELEC 6671 is cross-listed with ELEC 445.

E48 - Computing Systems

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- COEN 6211 Biological Computing and Synthetic Biology (4.00)
- COEN 6311 Software Engineering (4.00)
- COEN 6312 Model-Driven Software Engineering (4.00)
- COEN 6313 Programming on the Cloud (4.00)
- COEN 6321 Applied Evolutionary and Learning Algorithms (4.00)
- COEN 6331 Neural Networks (4.00)
- COEN 6341 Embedded Systems Design (4.00)
- COEN 6351 Protocol Design and Validation (4.00)
- COEN 6371 Machine Learning for Cyber-Physical Systems (4.00)
- COEN 6611 Real-time Systems (4.00)

- COEN 6711 Microprocessors and Their Applications (4.00)
- COEN 6721 Fault-Tolerant Distributed Systems (4.00)
- COEN 6731 Distributed Software Systems (4.00)
- COEN 6741 Computer Architecture and Design (4.00)
- COEN 6751 Cyber-Physical Systems Modeling and Design (4.00)
- COEN 6761 Software Testing and Validation (4.00)
- ENGR 6231 Microfluidic Devices for Synthetic Biology (4.00)

Note: The following courses are cross-listed:
COEN 6211 is cross-listed with COEN 433
COEN 6313 is cross-listed with COEN 424
COEN 6321 is cross-listed with COEN 432
ENGR 6231 is cross-listed with COEN 434
COEN 6561 is cross-listed with COEN 422

E51 - Industrial Control and Automation

- MECH 6011 Analysis and Design of Pneumatic Systems (4.00)Note: The following courses are cross-listed: MECH 6021 and MECH
- MECH 6021 Design of Industrial Control Systems (4.00)473; MECH 6051; MECH 6061; and MECH 6621 and MECH 471.
- MECH 6041 Virtual Systems Engineering (4.00)
- MECH 6051 Process Dynamics and Control (4.00)
- MECH 6061 Analysis and Design of Hydraulic Control Systems (4.00)
- MECH 6081 Fuel Control Systems for Combustion Engines (4.00)
- MECH 6621 Microprocessors and Applications (4.00)
- MECH 6631 Industrial Automation (4.00)
- MECH 7011 Dynamics of Hydraulic Control Systems (4.00)

E52 - Thermodynamics and Heat Transfer

- MECH 6101 Kinetic Theory of Gases (4.00)
- MECH 6131 Conduction and Radiation Heat Transfer (4.00)
- MECH 6141 Heat Exchanger Design (4.00)
- MECH 6181 Heating, Air Conditioning and Ventilation (4.00)
- MECH 6191 Combustion (4.00)
- MECH 7101 Convection Heat Transfer (4.00)

Note:The following course is cross-listed: MECH 6181 and MECH 453.

E53 - Machine Design and Production

- ENGR 6161 Sensors and Actuators (4.00)
- ENGR 6371 Micromechatronic Systems and Applications (4.00)
- MECH 6421 Metal Machining and Surface Technology (4.00)
- MECH 6431 Introduction to Tribology (Wear, Friction and Lubrication) (4.00)
- MECH 6441 Stress Analysis in Mechanical Design (4.00)
- MECH 6451 Computer-Aided Mechanical Design (4.00)
- MECH 6481 Aeroelasticity (4.00)
- MECH 6491 Engineering Metrology and Measurement Systems (4.00)
- MECH 6611 Numerically Controlled Machines (4.00)
- MECH 6641 Engineering Fracture Mechanics and Fatigue (4.00)
- MECH 6671 Finite Element Method in Machine Design (4.00)
- MECH 6691 Optical Microsystems (4.00)

Note:The following course is cross-listed: MECH 6481 and AERO 431.

E54 - Materials Engineering and Processing

- MECH 6511 Mechanical Forming of Metals (4.00)
- MECH 6531 Casting (4.00)
- MECH 6541 Joining Processes and Nondestructive Testing (4.00)
- MECH 6551 Fracture (4.00)
- MECH 6561 High Strength Materials (4.00)
- MECH 6571 Corrosion and Oxidation of Metals (4.00)
- MECH 6661 Thermodynamics and Phase Equilibria of Materials (4.00)

Note:The following courses are cross-listed: MECH 6511 and MECH 421.

E56 - Ground Vehicle Dynamics

- MECH 6741 Mechatronics (4.00)
- MECH 6751 Vehicle Dynamics (4.00)
- MECH 6761 Vehicular Internal Combustion Engines (4.00)
- MECH 6771 Driverless Ground Vehicles (4.00)
- MECH 6781 Guided Vehicle Systems (4.00)
- MECH 7511 Vehicle Vibration and Control (4.00)
- MECH 7711 Handling and Stability of Road Vehicles (4.00)

Note:The following courses are cross-listed: MECH 6741, and MECH 474; MECH 6751, and MECH 448; MECH 6771; MECH 6781 and MECH 444.

E57 - Composite Materials

- MECH 6501 Advanced Materials (4.00)
- MECH 6521 Manufacturing of Composites (4.00)
- MECH 6581 Mechanical Behaviour of Polymer Composite Materials (4.00)
- MECH 6601 Testing and Evaluation of Polymer Composite Materials and Structures (4.00)
- MECH 6651 Structural Composites (4.00)
- MECH 7501 Design Using Composite Materials (4.00)

Note:The following courses are cross-listed: MECH 6521 and MECH 425; MECH 6581 and MECH 422.

E58 - Chemical Process Engineering

- CHME 6001 Project in Chemical and Materials Engineering (1.00)
- CHME 6011 Advanced Transport Phenomena (4.00)
- CHME 6021 Advanced Chemical Engineering Thermodynamics (4.00)
- CHME 6031 Chemical Kinetics and Reaction Engineering (4.00)
- CHME 6041 Chemical Engineering Process Dynamics and Control (4.00)
- CHME 6051 Chemical Process Engineering and Design (4.00)
- CHME 6061 Advanced Biochemical Engineering (4.00)
- CHME 6071 Materials Science and Engineering (4.00)
- CHME 6081 Advanced Separation Processes (4.00)
- CHME 6091 Statistics for Chemical Engineering (4.00)
- CHME 6101 Advanced Battery Materials and Technologies (4.00)
- CHME 6111 Polymer Chemistry and Engineering (4.00)
- CHME 6121 Nanomaterials Science and Engineering (4.00)
- CHME 6131 Advanced Colloid and Interface Science and Engineering (4.00)
- CHME 6911 Topics in Chemical Engineering I (4.00)
- CHME 6981 Chemical Engineering Research Protocols and Safety (4.00)
- CHME 7911 Topics in Chemical Engineering II (4.00)

E61 - Doctoral/PHD Seminar

- ENCS 8011 PhD Seminar (2.00)

E62 - Thesis and Comprehensive Examination

- ENCS 8501 Comprehensive Examination (0.00)
- ENCS 8511 Doctoral Research Proposal (6.00)
- ENGR 8901 Master of Applied Science Research and Thesis (29.00)
- ENGR 8911 Doctoral Research and Thesis (70.00)
- INSE 8901 Master of Applied Science Research and Thesis (29.00)

E63 - Project, Report And Industrial Training

- BCEE 6001 Graduate Seminar in Building and Civil Engineering (1.00) ENCS 6931
- CIVI 7901 Environmental Engineering Research Project (8.00)
- INSE 6961 Graduate Seminar in Information and Systems Engineering (1.00)
- ENGR 692 Case Study and Report (1.00)
- ENGR 6971 Project and Report I (4.00)
- ENGR 6981 Project and Report II (4.00)
- ENGR 6991 Project and Report III (5.00)
- INDU 6990 Industrial Engineering Capstone (8.00)
- INDU 6991 Engineering Management Industrial Stage I (8.00)
- INDU 6992 Engineering Management Industrial Stage II (8.00)

E65 - Cyber-Physical Systems Security Engineering

- INSE 6710 Fundamentals and Applications of Cyber-Physical Systems (4.00)

E66 - Systems Engineering

- INSE 6311 Sustainable Infrastructure Planning and Management Systems (4.00)
- INSE 6400 Principles of Systems Engineering (4.00)
- INSE 6411 Product Design Theory and Methodology (4.00)
- INSE 6421 Systems Integration and Testing (4.00)
- INSE 6431 Ad Hoc Wireless Networks: Architectures and Protocols (4.00)

E67 - 3D Graphics and Intelligent Systems

- INSE 6510 Video Game Technology and Development (4.00)
- INSE 6530 3D Graphics and Computer Animation for Game Design (4.00)

E68 - Quality Systems Engineering

- INSE 6210 Total Quality Methodologies in Engineering (4.00)
- INSE 6220 Advanced Statistical Approaches to Quality (4.00)
- INSE 6230 Total Quality Project Management (4.00)
- INSE 6240 Executive Communication (1.00)
- INSE 6250 Quality Methodologies for Software (4.00)
- INSE 6260 Software Quality Assurance (4.00)
- INSE 6270 Quality-Based Systems Engineering (4.00)
- INSE 6280 Quality Assurance for Systems Engineering (4.00)
- INSE 6290 Quality in Supply Chain Design (4.00)

- INSE 6300 Quality Assurance in Supply Chain Management (4.00)
- INSE 6310 Systems Engineering Maintenance Management (4.00)
- INSE 6330 Discrete Choice Experiments in Product and Service Design (4.00)
- INSE 6350 Computational Geoprocessing in Systems Engineering (4.00)

E69 - Information Systems Security

- INSE 6110 Foundations of Cryptography (4.00)
- INSE 6120 Crypto-Protocol and Network Security (4.00)
- INSE 6130 Operating Systems Security (4.00)
- INSE 6140 Malware Defenses and Application Security (4.00)
- INSE 6150 Security Evaluation Methodologies (4.00)
- INSE 6160 Database Security and Privacy (4.00)
- INSE 6170 Network Security Architecture and Management (4.00)
- INSE 6180 Security and Privacy Implications of Data Mining (4.00)
- INSE 6190 Wireless Network Security (4.00)
- INSE 6610 Cybercrime Investigations (4.00)
- INSE 6615 Blockchain Technology (4.00)
- INSE 6620 Cloud Computing Security and Privacy (4.00)
- INSE 6630 Recent Developments in Information Systems Security (4.00)
- INSE 6640 Smart Grids and Control System Security (4.00)
- INSE 6650 Trusted Computing (4.00)
- INSE 6660 Secure Programming (4.00)
- INSE 6670 Embedded Systems Security (4.00)
- INSE 6680 Systems Physical Security (4.00)
- INSE 6690 Fundamentals of Federated Learning (4.00)

E70 - Information Systems Engineering

- INSE 6100 Advanced Java Platforms (4.00)
- INSE 6320 Risk Analysis for Information and Systems Engineering (4.00)
- INSE 6441 Applied Game Theory and Mechanism Design (4.00)
- INSE 7100 Design and Analysis of Security Protocols (4.00)
- INSE 7110 Value Added Service Engineering in Next Generation Networks (4.00)
- INSE 7120 Advanced Network Management (4.00)

E71 - Computer Science

See courses listed for Topic Areas C01 - Developments in Computer Science to C07 - Artificial Intelligence and Human-Machine Communication in Computer Science and Software Engineering Courses.

E72 - Business Administration Program

- MBA 642 Financial Reporting for Responsible Decision Making (3.00)
- MBA 643 Managerial Analytics (3.00)
- MBA 646 Financial Management (3.00)
- MBA 648 Business Process Management (3.00)
- MBA 649 Strategic Managerial Accounting and Control (3.00)

E73 - Software Engineering

See courses listed for Topic Areas C08 - Developments in Software Engineering to C13 - Software Engineering in the Computer Science and Software Engineering Courses section.

F03 - Microelectronic Systems

- COEN 6501 Digital System Design and Synthesis (4.00)
- COEN 6511 VLSI Circuit Design (4.00)
- COEN 6521 Design for Testability (4.00)
- COEN 6531 ASIC Synthesis (4.00)
- COEN 6541 Functional Hardware Verification (4.00)
- COEN 6551 Formal Hardware Verification (4.00)
- ELEC 6051 Introduction to Analog VLSI (4.00)
- ELEC 6071 Mixed-Signal VLSI for Communication Systems (4.00)
- ELEC 6081 Modern Analog Filter Design (4.00)

Building Engineering Courses

BCEE 6001 Graduate Seminar in Building and Civil Engineering (1 credits)

Prerequisite/Corequisite:
Students must be enrolled in an MEng program offered by the Department of Building, Civil and Environmental Engineering.

Description:
MEng students attend a set of seminars identified by the Department.

Component(s):
Lecture

Notes:

- This course cannot be taken by MASc or PhD students.
- This course is equivalent to BCEE 6961. Students who have completed BCEE 6961 cannot take this course for credit.

BLDG 6061 Structural Systems for Buildings (4 credits)

Description:
Building components and assembled systems. Structural efficiency and economy: rigid frames, shear walls, framed tube, latticed structures; membrane, air and cable supported structures. Selection and preliminary design of building structural systems, materials and components. Case studies.

Component(s):
Lecture

BLDG 6071 Wind Engineering and Building Aerodynamics (4 credits)

Description:
Atmospheric circulations; atmospheric boundary layer; wind structure; wind speed and turbulence measurements; bluff body aerodynamics; mean and fluctuating wind forces on buildings; internal wind pressures; along-wind, across-wind and torsional building response to wind; snow drifting and accumulation problems; dispersion of gaseous pollutants. A case study or a project is required.

Component(s):
Lecture

BLDG 6111 Fundamentals of Smart Buildings Operation (4 credits)

Description:

This course introduces the topic of smart buildings operation, with emphasis on HVAC and lighting systems. Basic concepts of building operation dynamics are presented, including analytical and numerical methods to model the thermal response of buildings to weather conditions and user loads. An overview of the structure of building automation systems (BAS) and building energy management systems (BEMS) is presented. The role of utility fee structures is presented, along with the concept of building-grid interaction and energy flexibility. Finally, a brief introduction to occupants' behaviour considerations, and applications of artificial intelligence techniques are presented. A project is required.

Component(s):

Lecture

BLDG 6231 Applications of Artificial Intelligence in Building and Civil Engineering (4 credits)

This is a cross-listed course.

Description:

Introduction to artificial intelligence techniques in an engineering context; heuristic search methods, logical reasoning, knowledge-based systems, neural networks, genetics algorithms, and case-based reasoning. Algorithmic versus knowledge-based programming for engineering applications. Emphasis on knowledge-based systems and their characteristics, capabilities and limitations. Case studies in design, failure diagnosis and processing of standards. A project is required.

Component(s):

Lecture

Notes:

BLDG 6241 Building Information Modelling in Construction (4 credits)

Description:

Topics include introduction to Building Information Modelling (BIM) technologies; BIM implementation at different project stages - pre-construction, construction, and facility management; BIM-Aided design alternatives, constructability analysis, and development of space-time-cost models; BIM visualization for trade coordination and processes monitoring. A project is required.

Component(s):

Lecture

Notes:

- This is a cross-listed course. Students who have completed BLDG 480 and the same topic under BLDG 498 may not take this course for credit.

BLDG 6541 Thermal Analysis in Buildings (4 credits)

Description:

Two- and three-dimensional steady-state and transient conductive heat transfer together with convection and radiation is studied as applied to building materials, geometries and orientation. Heating and cooling load analyses are carried out including the effects of building envelope type, construction type, solar radiation, wind speed, and daily load variations. Thermal load analysis is modelled using computer applications. A project is required.

Component(s):

Lecture

Notes:

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- This course is equivalent to BLDG 476. Students who have received credit for BLDG 476 may not take this course for credit.

BLDG 6561 Building Economics I (4 credits)

Description:

Development of economic performance measures of interest to developers, owners, contractors and users. Sources of finance and the determinants of the cost of money. Elementary estimating; cost indices; forecasting techniques; value of money; economic comparison techniques; evaluation of projects in private and public sectors; tax regulations; inflation; life-cycle costing; risk analysis; non-economic attributes. Case studies of economic analysis of projects, single building and building components. A project is required.

Component(s):

Lecture

Notes:

- Students who have received credit for ENGR 301 may not take this course for credit.

BLDG 6571 Project Management (4 credits)

Description:

Introduction to managing the development, design and construction of buildings. Examination of project management for the total development process, including inter-relationships between owners, developers, financing sources, designers, contractors and users; methods of project delivery; introduction to planning and scheduling; role and tasks of the project manager; feasibility analyses; construction claims; financing and cash-flow analysis; government regulations; environmental and social constraints; introduction to control of cost, time and technical performance; human factors; computer applications. A project is required.

Component(s):

Lecture

BLDG 6581 Decision Analysis (4 credits)

Description:
Development of a basic theory of decision making under uncertainty. Rationales of decision makers, utility, the concept of the value of perfect information. The Bayesian approach to decision making; pre-posterior analysis and optimal fixed-sized analysis for random processes. Decision analysis with multiple objective, structuring the problem, multi-attributed utility functions, case studies. A project is required.

Component(s):
Lecture

BLDG 6601 Building Enclosure (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 6611.

Description:
Schematic and detail design of walls, windows and roofs. Complex building types will be examined to show the relationships between massing, materials, energy conservation and building use. Solar shading, daylighting, rainscreen and air barrier principles will be emphasized. A project is required.

Component(s):
Lecture

Notes:

- Students who have completed BLDG 463 may not take this course for credit.

BLDG 6611 Building Science (4 credits)

Description:
Environmental exterior and interior influences on inner environmental control. Topics include: thermal energy exchanges, psychrometrics, vapour and fluid flow, air leakage, ventilation and design comfort conditions, selection of materials and building systems. A case study or a project is required.

Component(s):
Lecture

Notes:

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- Students who have completed BLDG 365 may not take this course for credit.

BLDG 6621 Non-structural Building Materials (4 credits)

Description:

The mechanical, thermal and hygrothermal properties of non-traditional building materials are discussed, such as: plastics, fibres, adhesives, sealants and coatings, plastic cellular foams, sandwich panels, composites, polymer and fibre-reinforced mortars, polymer and polymer composite membranes, water resistive membrane and air and vapour control barriers. The degradation of materials is introduced including the effects of actions due to corrosion, biological agents, heat and solar radiation, and thermal dilation. The application of materials and building products in buildings is demonstrated through the use of specifications, their performance assessment by testing, and relation to the building code. A project is required.

Component(s):

Lecture; Reading

Notes:

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- This course is cross-listed with BLDG 462. Students who have completed BLDG 462 cannot take this course for credit.

BLDG 6622 Durability of Building Materials and Components (4 credits)

Description:

Concepts underlying the long-term performance of traditional and non-traditional building materials are discussed. Traditional materials covered include: wood and wood-based products, stone, tile and brick masonry, stucco, concretes, steel and selected mortar and concrete composite materials. Nontraditional materials covered include sealants and coatings, plastic foam, glass and mineral fibre insulation products, polymer-based membranes used for waterproofing, air and vapour control barriers. Failure mechanisms under combined actions of mechanical and environmental loads (temperature, moisture, freezethaw, solar radiation, salt solutions, and biological agents) are introduced. A project is required.

Notes:

- Students who have completed BLDG 7601 may not take this course for credit.
-

BLDG 6631 Fundamentals of Facility Management (4 credits)

Description:

Systems approach to planning, organization and implementation of a facility, including space allocation, leasing and marketing, operation, maintenance, and renovation over the life of the building. Forecast of budget requirements for effective operation, maintenance, and renovation. Correlation between the operation of the building and health risks, comfort, productivity, and costs. Integrated approach to the planning, analysis, evaluation, organization and optimization of physical systems of facilities. Case studies.

Component(s):
Lecture

Notes:

- This course is cross-listed with BLDG 481. Students who have completed BLDG 481 or the same topic under BLDG 498 may not take this course for credit.

BLDG 6641 Modular and Off-site Construction (4 credits)

Description:
This course covers fundamentals of modular and off-site construction (MOC). The MOC design strategic and operational planning, continuous improvement, just-in-time production, “pull” philosophy, value stream mapping (VSM), 5S (Standardize, Sort, Shine,Sustain, and Straighten) and the visual workplace are discussed in terms of productivity improvement. The physical demand assessment and management using ergonomic posture assessment techniques is introduced for the development of workplace design and factory layout in timely completion of MOC without sacrificing safety. A project is required.

Component(s):
Lecture

BLDG 6651 Fire and Smoke Control in Buildings (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 6611.

Description:
Topics treated include: fire and smoke control; failure mechanisms of building enclosure, illustrated by case studies; performance codes for enclosure systems; enclosure design for extreme operation environments. A project is required.

Component(s):
Lecture

Notes:

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- This course is cross-listed with undergraduate course BLDG 465. Students who have completed BLDG 465 may not take this course for credit.

BLDG 6661 Hygrothermal Performance of the Building Envelope (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: BLDG 6611.

Description:
This course covers modelling of dynamic building envelope thermal performance including thermal bridges, modelling of transient moisture transfer, condensation and accumulation. Strategies for heat and moisture control such as advanced glazings and active building envelope components are analyzed. Experimental techniques for performance evaluation of the building envelope including infrared thermography, guarded hot box and calibrated hot box tests are introduced. A project is required.

Component(s):
Lecture

BLDG 6671 Diagnostics and Rehabilitation of Building Envelope (4 credits)

Description:
Failures in building envelopes. Modes of deterioration including freeze-thaw, chemical, movements. Diagnostics and investigation techniques including field survey instruments. Assessment of intervention magnitude and performance of proposed solutions. Codes, standards and regulations. Case studies.

Component(s):
Lecture

Notes:

- This course is cross-listed with BLDG 484. Students who have completed BLDG 484 or the same topic under BLDG 498 may not take this course for credit.

BLDG 6701 Building Environment (4 credits)

Description:
Design criteria of indoor environment. Assessment of thermal comfort and sensation. Mathematical models of thermal comfort: predictive models and adaptive models. Prediction of thermal sensation using: computer simulation, and measurements with thermal comfort meter. Verification of compliance with standards. Visual comfort. Standards for quality of visual environment. Calculation of photometric parameters. Preliminary design of the indoor lighting system. Evaluation of illuminance level using commercially available software packages. Acoustical comfort. Standards for quality of acoustical environment. Sound control measures through the design of buildings and HVAC systems. Two projects.

Component(s):
Lecture

BLDG 6711 Mechanical Systems in Building (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: BLDG 6701.

Description:

HVAC Systems. Analysis, selection and operation; design of air and water distribution systems in buildings; waste water disposal and sprinkler systems. A project is required.

Component(s):
Lecture

BLDG 6721 Building Acoustics (4 credits)

Description:
An understanding of sound and an examination of the major factors which contribute to a controlled acoustic environment in buildings. Topics covered include: basic vibration, sources, measurement and description of environmental noise, psychological and physiological aspects of sound perception; sound transmission through building elements; reverberation, measurement and control; and room acoustics. Case studies and a project are required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course BLDG 473. Students who have completed BLDG 473 may not take this course for credit.

BLDG 6731 Building Illumination and Daylighting (4 credits)

Description:
Radiative transfer in enclosures, quantitative and qualitative aspects of illumination systems are introduced. Photometric parameters, visual perception and colour theory concepts, lighting standards, daylight and artificial illumination systems are presented. An overview of lighting systems and their design for improved energy efficiency is given. Design of advanced fenestration systems for daylighting, including motorized shading and semi-transparent photovoltaics is presented. High-performance building case studies are presented. Computer simulation techniques and software for lighting and daylighting are introduced.. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course BLDG 474. Students who have completed BLDG 474 may not take this course for credit.

BLDG 6741 HVAC Control Systems (4 credits)

Description:
HVAC control loops: classification and structure, specifications, hardware, tuning and testing. Optimization of single- and multi-loop

control systems. Energy management systems for monitoring, control and diagnostics of HVAC system operation. A project is required.

BLDG 6751 Indoor Air Quality and Ventilation (4 credits)

Description:
History and development of indoor air science. Relevant national and provincial standards and regulations. Principles of occupational hygiene; identification, evaluation and control of physical, biological, and chemical agents in indoor environment. Ventilation requirements. Definition of ventilation efficiency and removal effectiveness; measurement techniques and modelling. Indoor air monitoring; field studies of gases, fumes, solvents, and dusts. Plan for building walkthrough evaluations; strategies for improving indoor air quality. Building design for acceptable indoor air quality, material selection and specification. A case study or project.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course BLDG 475. Students who have completed BLDG 475 may not take this course for credit.

BLDG 6761 Intelligent Buildings (4 credits)

Description:
Issues related to the Intelligent Building; automation, communication and security. Mechanical, electrical, electronic subsystems and their integration within the building; configuration and operational characteristics; performance specifications; analytical models; design methods; case studies. A project is required.

Component(s):
Lecture

BLDG 6781 Energy Management in Buildings (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: BLDG 6611.

Description:
Energy-related standards, codes and by-laws. Methods of assessment of the actual energy performance. Conventional and innovative measurement and analysis techniques. Energy-oriented renovation or replacement of building sub-systems (e.g. HVAC and lighting systems). Prediction of energy and cost savings using commercially available software packages. Verification of compliance with standards. Life cycle analysis. A case study and project.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course BLDG 472. Students who have completed BLDG 472 may not take this course for credit.

BLDG 6791 Thermal Building Simulation (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 6611.

Description:
Mathematical models of heat and mass transfer phenomena through building components: transfer function methods and numerical methods. Models of radiative and convective heat transfer phenomena within buildings. Application to equipment-based modelling of HVAC systems: first principle models and correlation-based models. System-based modelling of HVAC systems. Validation of computer models. A project is required.

Component(s):
Lecture

BLDG 6801 Construction Planning and Control (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 6571.

Description:
Methods of delivering construction. Contractual relationships and organizational structures. Phases of project development. Estimating resource requirements; costs and durations. Bidding strategies. Network analysis using CPM and PERT, time-cost trade-off, resource allocation. Cash flow analysis. Earned-value concept for integrated time and cost control. Quality control. Value engineering. A case study and project.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course BCEE 465. Students who have completed BCEE 465 may not take this course for credit.

BLDG 6811 Labour and Industrial Relations in Construction (4 credits)

Description:
The study of labour legislation with special emphasis on the construction industry, union organization, the theory and practice of negotiations, mediation, contract administration and arbitration. Review of actual contracts, discussion of future trends. Case studies.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course BCEE 491. Students who have completed BCEE 491 may not take this course for credit.

BLDG 6821 Legal Issues in Construction (4 credits)

Description:
Legal concepts and processes applicable to the development of constructed facilities and to the operation of the construction firm. Emphasis on Quebec law and institutions. Case studies.

Component(s):
Lecture

Notes:

-
- This course is cross-listed with undergraduate course BCEE 493. Students who have completed BCEE 493 may not take this course for credit.

BLDG 6831 Construction Processes (4 credits)

Description:
A study of current construction methods and techniques. The subjects include wood framing, masonry, concrete forming, slipforming, precast construction, industrialized building, deep excavation shoring and underpinning. The methods are described in terms of materials involved, equipment required, current field practice and safety considerations. Case studies.

Component(s):
Lecture

Notes:

-
- This course is cross-listed with undergraduate course BCEE 492. Students who have completed BCEE 492 may not take this course for credit.

BLDG 6851 Project Cost Estimating (4 credits)

Description:

Techniques and procedures used for estimating cost of construction projects. Topics include: cost estimation process; elements of project cost; conceptual and detailed cost estimation methods; risk assessment and range estimating; case studies; computer-aided estimating. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course BCEE 464. Students who have completed BCEE 464 may not take this course for credit.

BLDG 6861 Simulations and Design of Construction Operations (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 6831.

Description:
Principles of modelling and simulation. Classification and validation of simulation models. Analysis of input data and outputs. Object Oriented Simulation (OOS). Simulation languages. Application of discrete event simulation in construction operations including earthmoving operations, building construction operations, and tunneling operations. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with BCEE 466. Students who have completed BCEE 466 may not take this course for credit.

BLDG 691 Topics in Building Engineering I (4 credits)

Component(s):
Lecture

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

BLDG 6921 Trenchless Technology for Rehabilitation Works (4 credits)

Description:
State of Canadian urban infrastructure with a focus on underground facilities; current industry practice; common types of defects in

underground pipes; diagnostics of defects and evaluation techniques for the conditions of water and sewer mains; planning, equipment, materials and methods for rehabilitation of water and sewer mains; case studies.

Component(s):
Lecture

BLDG 6951 Solar Building Modelling and Design (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 6611. If prerequisites are not satisfied, permission of instructor is required.

Description:
Design principles of solar buildings, including direct gain, indirect gain and solaria are introduced. Numerical and analytical modelling of net-zero energy solar buildings are presented. Key technologies for solar buildings are presented, including advanced fenestration systems and control of solar gains, building-integrated photovoltaic systems, thermal storage systems, solar thermal collectors and integrated energy systems that combine these technologies to achieve net-zero energy performance. Major case studies of advanced net-zero energy buildings and solar demonstration projects are presented. A project is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have completed the same topic under BLDG 498 may not take this course for credit.

BLDG 7401 Dispersion of Building Exhaust (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 6611.

Description:
Atmospheric parameters, wind velocity profiles, meteorological data. Gaussian dispersion equations. Plume rise and trajectories. Evaluation of stack gas plume dispersion. Trapped plumes; Turner’s approximation. Potential reingestion of building exhaust. Analytical, numerical and experimental modelling of dispersion process; design guidelines fumigation. A case study or a project is required.

Component(s):
Lecture

BLDG 7511 Integrated Building Design (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: BLDG 6601 and BLDG 6711.

Description:
Compatibility among building subsystems (structural, envelope, mechanical, lighting, materials) and between the building and the environment. Integration issues in the design, production and operation of the built facility. Case studies of failures caused by lack of compatibility. Consideration for tolerances and sustainable development. A project is required.

Component(s):
Lecture

BLDG 7521 Advanced Computer-Aided Building Design (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 6231.

Description:
Characteristics of the building design process. Traditional versus emerging roles of computers pertaining to building design activities. Preliminary design and integrated design issues: analysis with incomplete/imprecise data, automatic sizing and checking based on Standards, interfaces between CAD and analysis routines, communications across disciplines and through design stages, standardization. Applications involving operations research techniques, KBS and analysis packages for engineering performance evaluation. A project is required.

Component(s):
Lecture

BLDG 7811 Project Acquisition and Control (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: BLDG 6571.

Description:
This course focuses on techniques and procedures used for construction project and control. The course topics mainly include trends and practices in competitive bidding, project configuration and contract packages, and procurement. Practical techniques for integrated time and cost control, trending and forecasting, and contingency and escalation analysis are introduced and discussed. Procurement and productivity measurement and modeling are reviewed. A project is required.

Component(s):
Lecture

BLDG 7831 Building Economics II (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: BLDG 6561; BLDG 6581.

Description:
Topics include: replacement analysis; risk analysis of projects; sensitivity analysis; forecasting techniques, profitability analysis; multi-

attributed decision analysis, case studies. A project is required.

Component(s):
Lecture

BLDG 7841 Information Technology Applications in Construction (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 7811.

Description:
Use of computers in estimating, cost engineering, scheduling and resource analyses, materials control, report generation and operations simulation. Information systems: information-based theories of management; information technology, cost and value information; analysis, design and implementation of a network based control system. Considerations for computer usage in construction firms; hardware, software, operations, economic, human and organizational. Product and process modelling; Internet use in product delivery. A project is required.

Component(s):
Lecture

BLDG 7861 Business Practices in Construction (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 6801.

Description:
A study of business practices as they relate to the construction industry. Topics treated include: organization; marketing; bid preparation; bonding; personnel management; financing; accounting; cash-flow analysis; capital budgeting. The principles are first presented and then followed by case studies. A project is required.

Component(s):
Lecture

BLDG 7871 Construction Equipment Management (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 6561.

Description:
The study of various classes of equipment, (cranes, excavators, loaders, tractors, etc.) used in construction. Methods are developed for selecting, acquiring, maintaining and replacing equipment. Treatment of simulation and its use for the optimal selection of equipment spreads. A project is required.

Component(s):

Lecture; Reading

BLDG 791 Topics in Building Engineering II (4 credits)

Description:

Subject matter will vary from term to term and from year to year.

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

Chemical and Materials Engineering Courses

CHME 6001 Project in Chemical and Materials Engineering (1 credits)

Description:
The course consists of an individual project in a chosen area of study in the area of Chemical and Materials Engineering under the supervision of a faculty member. This course may be repeated for credit.

Component(s):
Independent Study

CHME 6011 Advanced Transport Phenomena (4 credits)

Description:
Topics include equations of heat, mass, and momentum transfer; viscosity, thermal conductivity and diffusivity in laminar and turbulent conditions; velocity, temperature, and concentration distributions in selected systems; Navier-Stokes equations: direct simulation and turbulence modelling – Reynolds-averaged Navier-Stokes (RANS); turbulence near surfaces and interphase transport; multicomponent mass transfer; transport in porous media; effects of narrow pore size; and the dusty-gas model (DGM). A project is required.

Component(s):
Lecture

CHME 6021 Advanced Chemical Engineering Thermodynamics (4 credits)

Description:
Topics include principles, concepts, and laws/postulates of classical and statistical thermodynamics and their link to applications that require quantitative knowledge of thermodynamic properties from a macroscopic to a molecular level; basic postulates of classical thermodynamics and their application; criteria of stability and equilibria; constitutive property models of pure materials and mixtures, including molecular-level effects using statistical mechanics; equations of state; phase and chemical equilibria of multicomponent systems; and thermodynamics of polymers. Applications are emphasized through extensive problem work relating to practical cases. A project is required.

Component(s):
Lecture

CHME 6031 Chemical Kinetics and Reaction Engineering (4 credits)

Description:
Topics include applied chemical kinetics and their use in chemical reactor design and chemical plant operation. Both homogeneous and heterogeneous kinetics, including catalysis, are considered. Residence time distribution; dispersed plug flow reactors; radial mass and heat transfer limitation; mass and heat transfer limitation in and around catalyst pellets; multiphase reactors. A project is required.

Component(s):
Lecture

CHME 6041 Chemical Engineering Process Dynamics and Control (4 credits)

Description:
Topics include principles of process dynamics and control; step response curves; PID control; strategies for chemical process control; process model identification; dynamic chemical process simulation; model-predictive control algorithms; and assessment of controller performance. A project is required.

Component(s):
Lecture

CHME 6051 Chemical Process Engineering and Design (4 credits)

Description:
Topics include a review of the concepts of industrial chemical process design, engineering economics, process optimization, process simulation and plant safety; the use of fundamental knowledge in science and mathematics to design practical chemical engineering facilities. Special emphasis is placed on safety, hazards, sustainability and loss prevention issues in chemical plants. A project is required.

Component(s):
Lecture

CHME 6061 Advanced Biochemical Engineering (4 credits)

Description:
Topics include the interaction of chemical engineering, biochemistry, and microbiology; mathematical representations of microbial systems. Kinetics of growth, death, and metabolism are also covered, as well as studies of continuous fermentation, agitation, mass transfer, and scale-up in fermentation systems, and enzyme technology. A project is required.

Component(s):
Lecture

CHME 6071 Materials Science and Engineering (4 credits)

Description:
Topics include structure, behaviour and properties of engineering materials – metals, ceramics, polymers and composites; effects of crystalline structure and imperfections; and methods of observing, measuring and interpreting properties of materials. A project is required.

Component(s):
Lecture

CHME 6081 Advanced Separation Processes (4 credits)

Description:
Topics include a review of basic chemical and mechanical separations; multicomponent separations; membrane separations; adsorption; chromatographic separations; and ion exchange. A project is required.

Component(s):
Lecture

CHME 6091 Statistics for Chemical Engineering (4 credits)

Description:
Topics include a review of basic statistics; hypothesis testing; multivariate statistics; linear and nonlinear regression; chemical process model calibration; and response surface methodology. A project is required.

Component(s):
Lecture

CHME 6101 Advanced Battery Materials and Technologies (4 credits)

Description:
Topics include a review of the principles of batteries, fuel cells, and supercapacitors; electrodes and electrolytes; thermodynamics, reaction kinetics, transport phenomena, electrostatics and phase transformations of various energy storage materials, particularly lithium-ion batteries, supercapacitors, and fuel cells; and experimental methods to study key parameters of energy storage materials, focusing on a materials science approach. A project is required.

Component(s):
Lecture

CHME 6111 Polymer Chemistry and Engineering (4 credits)

Description:
Topics include the advanced theory and industrial practice of polymers, polymer chemistry, and polymer reactor engineering. The course covers polymer chemistry and polymerization kinetics for various types of polymerization including condensation, free radical, cationic, anionic, and coordination polymerization; polymerization processes including bulk, solution, emulsion, dispersion, gas phase, and slurry processes; polymer reactor engineering, polymer materials structure and property characterization, and recent developments in the field are included. A project is required.

Component(s):
Lecture

CHME 6121 Nanomaterials Science and Engineering (4 credits)

Description:
Topics include chemical and engineering aspects of nanomaterials. The course covers synthesis, characterization, properties, and applications of a variety of nanomaterials, with a focus on representative inorganic nanomaterials, as well as carbon nanomaterials such as fullerenes, carbon nanotubes, and graphene. A project is required.

Component(s):
Lecture

CHME 6131 Advanced Colloid and Interface Science and Engineering (4 credits)

Description:
Topics include properties of colloids and surfactants; physical and chemical interactions between colloidal particles: attraction and repulsion; stability of colloidal dispersions; coagulation and flocculation; surface and interface tension - wettability; characterization methods of colloidal particles; the relation between interface energy and adsorption; adsorption of surfactants on interfaces; micelles; surfactants in nanotechnology; adsorption in porous media; and surface characterization methods. A project is required.

Component(s):
Lecture

CHME 6911 Topics in Chemical Engineering I (4 credits)

Description:
Subject matter will vary from term to term and from year to year. A project is required.

Component(s):
Lecture

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

CHME 6981 Chemical Engineering Research Protocols and Safety (4 credits)

Description:
The purpose of this course is to provide the tools to conduct research in chemical engineering in a safe and professional manner. The

course provides all the safety training necessary for chemical engineering research. Students are also trained in Standard Operating Procedures (SOP) for chemical engineering research, and on how to respond in the case of chemical accidents, including first aid. Additional topics are covered on a rotating basis and may include safety regulations in the chemical industry, automation of chemical experiments, chemical and material data collection and usage, chemometrics, chemical process simulation, molecular modelling tools, advanced research and publication strategies, proposal writing, etc. A seminar is held, where each student is required to present. A project is required.

Component(s):
Seminar

Notes:

- This course is marked on a pass/fail basis.

CHME 7911 Topics in Chemical Engineering II (4 credits)

Description:
Subject matter will vary from term to term and from year to year. A project is required.

Component(s):
Lecture

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

Civil Engineering Courses

CIVI 6001 Advanced Reinforced Concrete (4 credits)

Description:
Strength limits; modes of failure; flexural and inclined cracking strength; crack propagation; crack width; deformation; biaxial and multiaxial strength of concrete; ultimate strength in flexure; ultimate strength in diagonal splitting; ultimate strength of columns; current research progress and modelling for finite element analysis; new code regulations. A project is required.

Component(s):
Lecture

CIVI 6011 Pre-cast and Pre-stressed Concrete Structures (4 credits)

Description:
Prefabrication and prestressing concepts; segmental and modular structures and connections; composite and pre-and post-tensioned structures; analysis and design of determinate and indeterminate systems; design codes. A project is required.

Component(s):
Lecture

CIVI 6021 Durability of Concrete Materials (4 credits)

Description:
Influence of constituent materials (cements, aggregates and admixtures) on the properties of fresh and hardened concrete. Chemistry and hydration reactions of cement and alternate cementing materials. Development of pore structure and its influence on transport and deterioration mechanisms, durability testing. Concrete mixture design and optimization for high performance and other speciality concrete types. Climatic loads affecting durability and performance. Performance vs. prescriptive specifications. A project is required.

Component(s):
Lecture

CIVI 6031 Seismic Assessment and Retrofit of Structures (4 credits)

Description:
Seismic rehabilitation requirements and performance objectives. Evolution of codes, standards and regulations. Selection of retrofit design methodology. General strategies to develop rehabilitation schemes: add stiffness, damping, and/or mass reduction. Seismic assessment of existing steel structures. Behaviour and design of structures equipped with energy dissipation devices. Case studies and a project are required.

Component(s):

Lecture

Notes:

- Students who have taken CIVI 691 Seismic Assessment and Retrofit of Structures may not take this course for credit.

CIVI 6051 Design of Industrial Structures (4 credits)

Description:

Problems in the design of industrial structures in steel, reinforced concrete, masonry, and timber; rejuvenation and expansion of existing plant facilities; design of bracing systems, foundations, silos and liquid storage tanks; connections, standard details and codes. A case study and project.

Component(s):

Lecture

CIVI 6061 Structural Health Monitoring (4 credits)

Description:

Review of the current state of infrastructure including bridges, dams, pipelines as well as buildings. Components of civil infrastructure including smart and innovative structures. Structural Health Monitoring (SHM): principles, techniques, implementation, interdisciplinary approach, advantages and challenges. SHM systems: component and system design, sensors and instrumentation, data acquisition, data management, interpretation of SHM data, assessment of structural condition, and decision making. Damage detection methods: local and global, analytical and experimental, non-destructive evaluation, vibration based damage identification. Field applications. A project is required.

Component(s):

Lecture

CIVI 6071 Advanced Steel Structures Design (4 credits)

Description:
Topics of this course include design principles of ductile building structures; fundamentals of stability theory, frame stability; concept, methods and applications of plastic analysis; design for local and global stability of braced frames, moment-resisting frames and structures equipped with passive supplemental damping systems: hysteretic, yielding and self-centring dampers; design strategies for enhanced seismic stability; computer applications. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for CIVI 691 may not take this course for credit.

CIVI 6101 Planning and Design of Bridges (4 credits)

Description:
History and development of bridges; basic parameters; material, system and geometry; selection of location and optimum proportioning of different structural types; selection and design of steel and concrete highway and railway bridge structures based on requirements of economics; maintenance, aesthetics and safety; modern trends in bridge design and construction; analysis of existing bridges; numerical examples. A project is required.

Component(s):
Lecture

Notes:

- Students who have completed CIVI 498 under the same course title may not take this course for credit

CIVI 6301 Hydrology (4 credits)

Description:
Weather elements; precipitation, stage-discharge relations; evapo-transpiration; ground water flow, method of images; streamflow hydrograph, unit hydrograph and its applications, synthetic hydrographs; laminar flow; hydrologic routing; instantaneous hydrography; hydraulic routing, method of characteristics, kinematic routing; statistical analysis, confidence intervals, stochastic generator, auto-regressive model; applications of hydrology. A case study and a project are required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course CIVI 483. This course cannot be taken for credit by students who have completed CIVI 483.

CIVI 6331 Hydraulic Engineering (4 credits)

Description:
Development of surface water resources; basic measurements in hydraulic engineering; storage reservoirs; practical problems; run-off characteristics of natural streams; control structures; economic analysis; energy dissipators; sediment transportation; transitions; elements of river engineering; navigation; control of floods. A case study and a project are required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have received credit for CIVI 484 may not take this course for credit.

CIVI 6381 Hydraulic Structures (4 credits)

Description:
Design of storage dams; characteristics of spillways and other outlet works; design of control structures; principles and design of flow measuring structures; special topics. A project is required.

Component(s):
Lecture

CIVI 6401 Transportation Systems Analysis (4 credits)

Description:
Aspects of probability and statistics as applied to transportation; network theory; system operations and safety management; applications of optimization and decision theory to selection of alternative systems and facility location; evaluation of traffic control devices; signal timing plans and management strategies. A project is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have taken CIVI 474 may not take this course for credit.

CIVI 6411 Urban Transportation Planning (4 credits)

Description:

Forecasting future travel patterns; travel characteristics; systems approach to transportation planning process; land use data collection and demand analysis; trip generation; trip distribution; model and root assignment; transportation of commodities; environmental impact analysis. Computer modelling. A project is required.

Component(s):
Lecture

Notes:

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- This course is cross-listed with undergraduate course CIVI 474. Students who have completed CIVI 494 may not take this course for credit.

CIVI 6441 Traffic Engineering (4 credits)

Description:
Analysis of existing traffic flow conditions; study of traffic characteristics; volume and speed surveys; capacity-performance relations for urban streets and intersections; signal timing and coordination; traffic and environmental management; computer applications in incident detection and control; analysis and management of safety. A project is required.

Component(s):
Lecture

Notes:

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CIVI 6451 Pavement Design (4 credits)

Description:
Components of pavement systems; materials, tests and specifications; granular and treated bases, subgrade and drainage; earthwork and soil stabilization; mechanistic-empirical theory for pavements; damage accumulation; axle loads and stresses in pavements; design methods for flexible and rigid pavements of highways and airports; design of pavement overlays; economic requirements; design projects and computer applications. A project is required.

Component(s):
Lecture

CIVI 6461 Pavement Management Systems (4 credits)

Description:
Topics include introduction to pavement systems; strategic, tactical and operational planning for sustainable pavements; preservation, rehabilitation, upgrading and expansion; pavement damage assessment; data collection; decision making; performance modelling;

pavement deterioration; coordination and scheduling of interventions. A project is required.

Component(s):
Lecture

CIVI 6481 Sustainable Management of Industrial Waste (4 credits)

Description:
Industrial ecology and sustainable engineering concepts, characterization and sources of industrial waste, toxicological and risk aspects of waste management; environmental impact, material flow analysis, energy balance and recovery, management of water and resources use, material minimization, storage, physical, chemical and biological transformations, recycling, reuse and disposal, life cycle assessment, regulations, ISO certification. A project is required.

Component(s):
Lecture

CIVI 6491 Engineering Aspects of Site Remediation (4 credits)

Description:
Physico-chemical characteristics of subsurface; soil biology; introduction to subsurface transport of contaminants; site assessment techniques; bioremediation principles and techniques; physico-chemical remediation; thermal removal; in-situ and ex-situ groundwater techniques; natural attenuation; case studies; lab demonstrations. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate equivalent course CIVI 469. Students who have completed CIVI 469 may not take this course for credit.

CIVI 6501 Foundation Engineering (4 credits)

Description:
Theoretical development of bearing capacity of shallow and deep foundations, settlement analyses, design of retaining walls, sheet piles, tiebacks and caissons, dynamic analyses of pile foundations, design of machine foundations, foundations on difficult soils, construction and performance of foundations, computer applications, case histories. A project is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have completed CIVI 435 may not take this course for credit.

CIVI 6511 Earth Structures and Slope Stability (4 credits)

Description:
Design and construction of earth and rockfill dams. Seepage problems, flow nets, seepage control, soil compaction and stabilization. Computer analysis of slope stability, factor of safety. Measures taken to limit and accommodate settlements. Case studies

Component(s):
Lecture

CIVI 6521 Soil Behaviour (4 credits)

Description:
Drained and undrained shear strength of soils, stress-strain relationships, two and three dimensional stress paths. Pore water pressure coefficients in saturated and partially saturated clays. One and three dimensional consolidation theories, design of sand drains, and applications. Special geotechnical problems. A project is required.

Component(s):
Lecture

CIVI 6531 Soil Testing and Properties (4 credits)

Description:
Measurement and evaluation of soil consolidation, strength, and pore water pressure characteristics by means of consolidation, triaxial and direct shear tests. Application of test results to design and research problems. A project is required.

Component(s):
Lecture

CIVI 6601 Modelling in Building and Environmental Engineering (4 credits)

Description:
Continuous and discrete forms of conservation laws: mass, momentum and energy, numerical methods (finite differences, implicit and explicit schemes, finite elements). Transport of contaminants and moisture in buildings and contaminants in the environment. Modelling and measuring sources and sinks of pollutants. Computer applications to building and environmental engineering. A case study and project.

Component(s):
Lecture

CIVI 6611 Environmental Engineering (4 credits)

Description:
Introduction to waste water treatment and control; stream pollution and control; ground water pollution; air pollution; acid rain, meteorological aspects. Noise pollution; hazardous waste disposal; solid waste management. A case study and a project are required.

Component(s):
Lecture

CIVI 6621 Engineering Aspects of Biological Treatment of Water and Air (4 credits)

Description:
Introduction to aerobic/anaerobic microbial processes, design of aerobic and anaerobic systems for biological treatment of municipal, industrial and agricultural water and air pollution, design and modelling of activated sludge reactors, trickling filters, plug flow reactors, lagoons, nutrient removal, constructed wetlands, phytoremediation, biofilters, bioscrubbers, management of biosolids, lab demonstration. A case study and project.

Component(s):
Lecture

CIVI 6631 Hazardous Material Management and Transportation (4 credits)

Description:
Characterization and sources of hazardous materials, accidental release of hazardous material, toxicological aspects of hazardous material; risk analysis, legal issues, management of hazardous material after catastrophic events, storage, treatments, recycling, reuse and exchange of hazardous materials, life cycle analysis, attenuation of accidental release of hazardous materials, transportation and environmental systems interface, transportation network, minimum-risk route models, determination of safe truck routes and management. A project is required.

Component(s):
Lecture

CIVI 6641 Unit Operations in Environmental Engineering (4 credits)

Description:
Physical and chemical principles underlying coagulation, flocculation, sedimentation, sorption, reverse osmosis, electrodialysis, ion exchange and sludge dewatering. Design and scale-up equations for clarifiers, absorption columns, filters, centrifuges, electrodialysis stacks, air components and demineralization units, lab demonstration. A case study and a project are required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have completed CIVI 466 may not take this course for credit.

CIVI 6651 Water Pollution and Control (4 credits)

Description:
Physical, chemical and biological characteristics of water, water quality standards, reaction kinetics and material balances, eutrophication. Containment of reactive contaminants. Natural purification processes in water system, adsorption, absorption; diffusion and dispersion, oxidation. Large-scale transport of contaminants, single and multiple source models; modelling of transport processes, computer simulation, introduction to groundwater pollution, sea-water intrusion. A case study and a project are required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have completed CIVI 465 may not take this course for credit.

CIVI 6661 Environmental Impact Assessment (4 credits)

Description:
Engineering activities and the environment; environmental ethics. Prediction and estimation, statistical analysis of impact on air, water, soil quality and biological, socio-economic, cultural environments. Water and air pollution law, solid and hazardous waste laws. Applications of GIS, Environmental inventories, assessment preparation and review. Federal and provincial laws and regulations on environmental assessment. Strategies for environmental compliance, resolution of environmental conflicts. Case studies and project.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course CIVI 464. Students who have completed CIVI 464 may not take this course for credit.

CIVI 6666 Climate Change in Engineering Practice (4 credits)

Description:

This course provides a broad understanding on the climate change phenomenon and its implications on engineering practice and design. By focusing on the emerging needs in various engineering areas related to built-environment, infrastructure, food, water and energy systems, various data sources and modeling tools are introduced for quantifying the effects of climate change across various spatial and temporal scales. Formal approaches to climate change impact assessment and quantifying the associated risk, exposure and vulnerability are reviewed with a critical evaluation of their pros and cons. Real-world engineering implications of climate change are highlighted in several real-world case studies taken from Canada and beyond. A project is required.

Notes:

- This course is equivalent to CIVI 691 Climate Change and Water Resources and ENGR 691 Climate Change and Engineering Practice. Students that have taken CIVI 691 Climate Change and Water Resources or ENGR 691 Climate Change and Engineering Practice may not take this course for credit.

CIVI 6671 Fate and Transport of Contaminants in the Environment (4 credits)

Description:

Physical and chemical properties of organic and inorganic contaminants, air-soil-water-cycle and contaminant interactions, adsorption/desorption models, soil components in contaminant transport, influence of groundwater composition, advective flow, diffusion transport, diffusion and dispersion coefficients, partition coefficients, mechanisms and modelling of contaminant transport in soil and groundwater, environmental fate of contaminants Case studies concerning landfills, greenhouse effects, soil and groundwater interactions, nuclear waste disposal. A project is required.

Component(s):

Lecture

CIVI 6681 Environmental Nanotechnology (4 credits)

Description:

Topics include basic concepts of nanoscience and nanotechnology; characterization of nanomaterials; nanoscience and public policy aspects; nanoparticle transport and fate in the environment; nanohazard assessment and nanotoxicology; environmental engineering applications of nanotechnology: pollutants sensing, monitoring, control and remediation. A project is required.

Component(s):

Lecture

CIVI 6691 Greenhouse Gases and Control (4 credits)

Description:

Topics include physiochemical characteristics of greenhouse gas (GHG) species; GHG emissions, inventories, quantification and management; international and regional standards, protocols, regulations and schemes; GHG information management systems; GHG reuse, recycling, and sequestration; GHG emissions modelling and control planning; available and emerging technologies for reducing GHG emissions. A project is required.

Component(s):

Lecture

CIVI 6711 Asset Management for Sustainable Civil Infrastructure (4 credits)

Description:

Topics include fundamentals of the infrastructure asset management process; strategic planning, location of underground assets, condition assessment and performance indicators, deterioration models, and development of community driven levels of service; life-cycle analysis, integrated infrastructure modelling, optimized intervention plans and budget allocation, asset management software systems. A project is required.

Component(s):

Lecture

CIVI 6721 Infrastructure Systems Modeling and Simulation (4 credits)

Description:

This course explores the design and operational considerations in urban infrastructure systems and how modeling and simulation assist in efficient, effective and sustainable management of them. Particular attention is given to the analysis of urban infrastructure as complex interdependent systems with respect to reliability and resilience perspectives. A project is required.

Notes:

- Students who have taken CIVI 691 under the course title Sustainable Cities Infrastructure Modelling and Simulation cannot take this course for credit.

CIVI 6731 Big Data Analytics for Smart Cities (4 credits)

Description:

This multi-disciplinary course will introduce various urban infrastructure sectors (transportation and mobility, buildings and housing, water distribution, sewer disposal, and urban energy systems) and explains how to solve such problems in action through digitalization and city big-data analytics. Topics covered include: socio-technical model of infrastructure; applications of Internet of Things (IoT) in construction and operation of urban infrastructure; big/open city data; data mining techniques for managing smart urban transportation;

energy systems; buildings; water and wastewater. A project is required.

Notes:

- Students who have taken CIVI 691 under the same course title cannot take this course for credit.

CIVI 6901 Selected Topics in Civil Engineering I (4 credits)

CIVI 691 Topics in Civil Engineering I (4 credits)

Component(s):
Lecture

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

CIVI 6931 Civil Infrastructure Rehabilitation (4 credits)

Description:
This course covers the following topics: state of Canadian urban infrastructure; rehabilitation techniques as applicable to steel and concrete structures, degradation mechanisms, detection and classification of defects; evaluation and assessment of the conditions of buildings and bridges; rehabilitation materials and methods; codes and guidelines; case studies.

Component(s):
Lecture

Notes:

- This course is equivalent to BLDG 6931. Students who have taken BLDG 6931 may not take this course for credit.

CIVI 7001 Earthquake Engineering (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6581.

Description:

Earthquake ground motion characteristics; behaviour of buildings, bridges, etc., methods and principles of structural dynamics; inelastic action and concept of energy absorption; evaluation of damage; soil structure interaction problems; design methods and code requirements; current research. A project is required.

Component(s):
Lecture

CIVI 7111 Theory and Design of Modern Bridge Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: CIVI 6101.

Description:
Hybrid, post-stressed and composite plate girders and trusses; delta type girders; orthotropic, shell types and tubular bridges, cable-stayed and stiffened cable bridges; optimization of bridge systems; vibrations and damping capacity; aerodynamics and seismic stability; concept of safety; fatigue and carrying capacity; use of models; application of computers. A project is required.

Component(s):
Lecture

CIVI 7311 Advanced Analysis of Groundwater Flow and Contamination (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENCS 6021.

Description:
Description Groundwater storage and supply; storage in confined aquifers; water table fluctuation; aquifers; steady groundwater hydraulics; aquifer tests and pumping. Groundwater flow equations; conservative and reactive contaminant transport of groundwater systems; analytical and numerical solutions of contaminant transport equations; flow and solute transport in fractured porous media; assessment of environmental impact of waste disposal operations, model implementation strategies. A project is required.

Component(s):
Lecture

CIVI 791 Topics in Civil Engineering II (4 credits)

Description:
Notes: Subject matter will vary from term to term and from year to year. Students may re-register for these courses, providing that the course content has changed. Changes in content will be indicated by the letter following the course number. e.g. CIVI 691A, CIVI 691B, etc.

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

CIVI 7901 Environmental Engineering Research Project (8 credits)

Prerequisite/Corequisite:

Students must have completed at least 20 credits in the Environmental Engineering program prior to enrolling.

Permission of the Department Graduate Program Director is required.

Description:

This is a research project to be completed under the supervision of a full-time faculty member from the Department. The research topic must be in the field of environmental engineering, and should be selected in consultation and with the approval of a faculty supervisor. The course is graded on the basis of the student's performance during the work period, which includes a technical report that is assessed by two faculty members in the area.

Component(s):

Lecture

Notes:

- This course is offered over two terms (Fall and Winter). This course cannot be taken for credit if the student has completed any of the following courses: ENCS 6931, ENGR 6971, ENGR 6981, ENGR 6991.

Electrical and Computer Engineering Courses

COEN 6211 Biological Computing and Synthetic Biology (4 credits)

Description:
Introduction to the cell and the genome. Foundations of synthetic biology and ethics. Synthetic genomes and metabolic engineering. Model organisms, such as E. coli bacteria, and synthetic cells: self-replicating cells man-made from cloned genes, a cellular membrane and the basic elements of RNA and protein synthesis. Designing computational devices for implementation in biological cells. Introduction to modelling and computer simulation of gene regulatory networks. Methods of building and testing gene regulatory networks within and without cells. Expanding functionality via inter-cellular signaling. Basic interfacing to electronic sensors and actuators. Landmark and interesting applications of synthetic biology in computer engineering and other disciplines. A project is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have received credit for COEN 691 or BIOL 631 (Biological Computing and Synthetic Biology) may not take this course for credit.

COEN 6311 Software Engineering (4 credits)

Description:
Software life cycle, software requirements and requirement documentation. Software design: top-down and bottom-up approaches; design validation and design reviews. Software implementation, choice of a programming language and portability. Testing, debugging and verification. Design of test cases. Software documentation and its maintenance. Documentation tools and documentation portability, user interface design. A project is required.

Component(s):
Lecture

COEN 6312 Model-Driven Software Engineering (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6311 or COEN 6471 or equivalent.

Description:
Model-Driven Architecture (MDA), domain-based system partitioning, Platform-Independent Modelling (PIM), Platform Specific Modelling (PSM), Unified Modelling Language (UML), static and dynamic modelling with UML, UML extension mechanisms, UML profiling, Object Constraint Language (OCL), model transformation, introduction to Query/View/Transformation standard, action specification (OAL), automatic system generation. A project is required.

Component(s):
Lecture

COEN 6313 Programming on the Cloud (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6311.

Description:
Topics include definition(s) of principles of cloud-based problem solving and programming; autonomy of cloud computing, service and business models, data centres and virtualization; CAP theorem, REST API and data models; MapReduce and programming model, distributed file systems for computer clusters, development environments and tools on clouds; cloud-based access and query; cloud application design principles; applications of cloud service concepts to the design of a real-world Internet service. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under COEN 691 (Programming on the Cloud) may not take this course for credit.
- This course is cross-listed with undergraduate course COEN 424. Students who have received credit for COEN 424 may not take this course for credit.

COEN 6321 Applied Evolutionary and Learning Algorithms (4 credits)

This course is cross-listed with COEN 432. Students who have received credit for COEN 432 may not enrol in this course.

Description:
Topics include heuristic learning algorithms applied to real-world problems of design, classification, prediction and abstraction. Genetic algorithms, genetic programming, evolutionary strategies, generative and developmental systems, artificial life approaches, swarm intelligence, self-modifying programs, tabu search, simulated annealing and support vector machines; introduction to deep learning architectures. Examples of practical applications and challenges focused on biological and biomedical engineering. A project is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have received credit for the undergraduate equivalent version may not take this course for credit.

COEN 6331 Neural Networks (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6131.

Description:
Fundamentals of artificial neural networks; rigorous analysis of and introduction to various network paradigms: perceptrons, backpropagation, counter-propagation, Hopfield nets, bi-directional associative memories, adaptive resonance theory, cognitron and neocognitron; neural network topologies, memories, learning, stability and convergence; applications to adaptive knowledge, knowledge processing, classification, pattern recognition, signal processing, communications, robotics and control; and assessment of current neural network technology. A project is required.

Component(s):
Lecture

COEN 6341 Embedded Systems Design (4 credits)

Prerequisite/Corequisite:
Permission of the Department is required.

Description:
This course covers embedded systems and the foundations for cyberphysical systems design. It covers embedded hardward (HW) architectures, sensors, actuators, and processors. Other topics include input/output (I/O) and peripherals, memory architectures, and interfacing memory and peripheral. Moreover, it covers hardwaresoftware partitioning, software transformations, floating to fixed point conversion, loop transformations, code compaction, low-power design and embedded system testing. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course COEN 421.

COEN 6351 Protocol Design and Validation (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: COEN 6311 and ELEC 6851 or COMP 6461.

Description:
The course briefly reviews computer networks and protocols fundamentals including OSI model and the Transmission Control Protocol/Internet Protocol (TCP/IP) stack. Topics covered include communication protocols vs. communication services, protocol modelling techniques such as finite-state machines (FSM) models, Petri net models, hybrid models, temporal logics, protocol specification languages such as Promela, the Specification and Description Language (SDL) and real-time Unified Modeling Language

(UML); protocol implementation and design techniques from specification to implementation; protocol verification techniques such as reachability analysis and model checking. The course covers also communication protocol testing including test architectures, test sequence languages and test case generation techniques. A project is required.

Component(s):
Lecture

COEN 6371 Machine Learning for Cyber-Physical Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6561.

Description:
This course deals with the fundamental principles of machine learning for cyber-physical systems (CPS). The course provides the necessary background, training and information on the fast-evolving field of machine learning and CPS. The course covers machine learning techniques and tools related to applications in CPS: neural networks, deep learning networks, convolutional neural networks, and reinforcement learning as
applied to CPS. A project is required.

Component(s):
Lecture

COEN 6501 Digital System Design and Synthesis (4 credits)

Description:
This course reviews standard VLSI (Very Large Scale Integration) microelectronics design flow and the Digital Design process. It then presents Programmable Logic Devices (PLD) and Field Programmable Gate Arrays (FPGA) technologies. Students are later introduced to VHDL, a Hardware Description Language (HDL), to model, simulate and design combinational as well as sequential circuits. Thereafter, synthesis techniques, timing analysis and design trade-offs are explained. The course then addresses the design and modeling of Finite State Machines (FSM), which relies on both sequential and combinational circuits. The Register Transfer Level (RTL) methodology is then presented and is illustrated using algorithms such as repetitive-addition multiplier and repetitive-subtraction division. Next, the course introduces methods to design large scale circuits; this includes hierarchical design, parametrized design and asynchronous design. A project is required.

Component(s):
Lecture

COEN 6511 VLSI Circuit Design (4 credits)

Description:
Physical design of digital circuits using technologies of Very Large Scale Integration. CMOS and BiCMOS logic blocks. CMOS processing technology, design rules, CAD issues, and limitation of CMOS technologies. Physical layouts and parasitic elements of CMOS circuits. Characterization and performance evaluation. Electrical simulation using HSPICE. Design and implementation of CMOS logic structures, interconnects, and I/O structures, emphasis on optimizing operation speed and/or power

dissipation/distribution. Project of circuit design using a specified CMOS technology. A project is required.

Component(s):
Lecture

COEN 6521 Design for Testability (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6501 or COEN 6511.

Description:
Stuck-at faults, observability, controllability, fault coverage, test vectors, automatic test pattern generation (ATPG), statistical fault analysis, ad-hoc testing, level sensitive scan design (LSSD), serial scan, parallel scan, signature analysis and BILBO, boundary scan, built-in-self-test (BIST), IDDQ testing. A project is required.

Component(s):
Lecture

COEN 6531 ASIC Synthesis (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: CIVI 6501 or COEN 6511.

Description:
Introduction to high level synthesis; synthesis models. The synthesis process; High Level Description Languages; scheduling; chaining and pipelining; clock optimization and synthesis; I/O synthesis. Behavioral synthesis; architectural trade-offs in power, area and delay. Design flow with FPGAs; design flow with full-custom and semi-custom ASIC's. A project is required.

COEN 6541 Functional Hardware Verification (4 credits)

This course is cross-listed course with undergraduate course COEN 413. Students who received credit for COEN 413 may not take this course for credit.

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6501 or equivalent.

Description:
This course focuses on functional verification techniques and tools for hardware systems. It starts with a review of hardware design languages and a definition of hardware functional verification, then it introduces basic object-oriented programming notions, such as classes, methods, inheritance, threads, interprocess communications, and virtual methods. Students are later introduced to coverage metrics, functional coverage, and functional verification computer aided design (CAD) tools. They learn the use of the SystemVerilog language to develop class-based verification environments based on the Universal Verification Methodology (UVM). Throughout the course, students are exposed to practical verification case studies. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for COEN 413 may not enrol in this course.

COEN 6551 Formal Hardware Verification (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6501 or COEN 6541.

Description:
This course reviews standard Very Large-Scale Integration (VLSI) design flow and existing design verification technologies. It then introduces notions of mathematical logic, such as propositional logic, first-order logic and higher-order logic, which lays the foundation for formal methods. Students are later introduced to several verification theories, including proof theory, model theory and automata theory. Thereafter, formal specification and modeling techniques are explained, including temporal logic, Binary Decision Diagrams (BDD) and finite transition graph systems. The main hardware verification techniques studied in this course are: Combinational Equivalence Checking, Sequential Equivalence Checking, Model Checking and Theorem Proving. For each of these techniques, the students learn the primary technology used, as well as advanced formal verification Computer Aided Design (CAD) tools. The students are also exposed to practical case studies. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for COEN 7501 (Hardware Formal Verification) may not take this course for credit.

COEN 6561 Foundations of Cyber-Physical Systems (4 credits)

Description:
Cyber-Physical Systems (CPS) consist of interacting networks of physical and computational elements. This course covers the fundamentals of modeling, specification, analysis and design of CPS. Models for computation and physical systems including discrete event dynamic models, finite-state machines (FSMs), extended FSMs, statecharts, Petri nets and continuous variable models are studied. Scheduling and optimization of process networks and hybrid models are covered. Specification, simulation and performance analysis of CPS and the relationship of program execution with physical
time constants are discussed. A project is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course.
- This course is cross-listed with undergraduate course COEN 422.

COEN 6611 Real-time Systems (4 credits)

Description:

Taxonomy of real-time systems; Scheduling algorithms for static and dynamic tasks; Fault-tolerance and reliability; Resource and resource access control; Multiprocessor scheduling, resource access control, and synchronization; Real-time communication, Case studies in distributed real-time systems (e.g., HARTS, MARS, Spring, etc.). A project is required.

COEN 6711 Microprocessors and Their Applications (4 credits)

Description:

This course focuses on microprocessor systems and their applications in modern information technology. In this course, the basics of microprocessor organization and their applications are reviewed. Examples of various microprocessors and system-level applications are given. Next, microprocessor architectures including Arithmetic Logic Unit (ALU), bus and input/output (I/O) organizations, and addressing modes are briefly discussed. In the next part, the focus is placed on the microprocessor interfacing. This includes using several modules and interfaces such as timers, counters, Pulse-width Modulators (PWM), memory and its hierarchy. Students are exposed to static and dynamic memory interfacing, Direct Memory Access (DMA), Digital to Analog Converter /Analog to Digital Converter (DAC/ADC), and serial communication protocols. Practical case studies are discussed and demonstrated. Also, some advanced topics are presented including interrupts, types of I/O interfacing, timing and software related issues.A project is required.

Component(s):

Lecture

COEN 6721 Fault-Tolerant Distributed Systems (4 credits)

Description:

Fundamentals of the design and analysis of fault-tolerant systems, Models for distributed systems, Fault/error models, Techniques for providing hardware/software redundancy, Fault-detection in multi-processors, Stable storage, Recovery strategies for multi-processors (checkpointing), System diagnosis, Software design faults, Experimental validation techniques, Case studies in fault-tolerant distributed systems. A project is required.

COEN 6731 Distributed Software Systems (4 credits)

Prerequisite/Corequisite:

The following course must be completed previously: COEN 6311 and ELEC 6851.

Description:

The course covers the distributed system programming paradigms such as threads and input and output (IO) concurrency, data

modeling and communicating
techniques, distributed algorithms such as MapReduce and system fault tolerance. Topics include multi threading, I/O concurrency, Remote Procedure Calls (RPC), HTTP/RESTful and ProtocolBuffer, Pub-Sub, message and queue, event-driven, distributed software system design and patterns, distributed file systems, replication, consistency and fault tolerance. A project is required.

Component(s):
Lecture

Notes:

- Students who have taken COMP 6231 may not take this course for credit.

COEN 6741 Computer Architecture and Design (4 credits)

Description:
The course focuses on hardware design issues of high-performance computer architectures. The course begins with a review of basic computer architecture design. Students then learn about fundamentals of quantitative design and analysis, instruction set principles, and memory hierarchy, including cache memory, cache optimization and virtual memory. Thereafter, instruction pipelining and advanced notions of instruction-level parallelism such as dynamic scheduling, branch prediction, superscalar and Very Long Instruction Word (VLIW) are discussed. Subsequently, students explore other means of modern day and future high-performance computing technology, including data-level parallelism, Graphics Processing Units (GPU) architectures, Single Instruction Multiple Data (SIMD) architectures, vector processors, thread-level parallelism, multicore processors and multiprocessor systems. Practical cases studies for each of the above techniques are discussed based on commercial processors. A project is required.

Component(s):
Lecture

COEN 6751 Cyber-Physical Systems Modeling and Design (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6561.

Description:
The course reviews the various Cyber-Physical Systems (CPS) modeling formalisms such as finite-state machines (FSMs), Petri nets, timed automata, discrete and
continuous time models and hybrid models. It also covers advanced modeling languages such as systems modeling language (SysML), unified modeling language (UML) and CPS related profiles. Topics include CPS specification, requirements engineering and analysis for CPS, CPS architectures, design, simulation, integration and synthesis techniques, as well as controller synthesis. The course also explores existing platforms for CPS modeling and design. A project is required.

Component(s):
Lecture

COEN 6761 Software Testing and Validation (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6311.

Description:
The course covers software testing process and software testing methods and techniques. Topics include overview of software process, software verification and software validation, inspection and reviews, pair programming, software version control, validating testing vs defect testing, test driven development, development testing (including unit testing, component testing, integration testing), regression testing, release testing, user testing, acceptance testing, performance testing, software metrics for testing purpose, configuration management and an introduction to formal methods. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course COEN 448.
- Students who have taken SOEN 7481 may not take this course for credit.

COEN 6841 Internet of Things (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6851.

Description:
This course covers the paradigm change from the Internet and devices to Internet of Things (IoT) and IoT business models and applications, including health monitoring and smart cities. It also covers the IoT characteristics, constraints and requirements, protocols stack and contrast with the Transmission Control Protocol/Internet Protocol (TCP/IP) protocol stack. Other topics include physical, link and networking layer protocols. Moreover, it covers the message queueing telemetry transport (MQTT) and constrained application (CoAP) application layer protocols, and efficient XML interchange (EXI). The course provides an introduction to security threats and privacy in IoT systems, IoT analytics, platforms and tools. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course ELEC 446.
- Students who have received credit for this topic under COEN 691 (Internet of Things) may not take this course for credit.

COEN 6851 Software-Defined Networking (4 credits)

(Also listed as COEN 447.)

Prerequisite/Corequisite:

The following course must be completed previously: ELEC 6851.

Description:

This course equips students with an understanding of the principles and techniques underpinning the design of software-defined networks (SDN). Topics include control and data planes, centralized vs. distributed control; network operating systems, network function virtualization; programmable data planes, network processors, programmable switch pipelines; high-level data-plane programming with P4 and data-plane development kit. Students will work on the design, implementation, and performance evaluation SDN architecture, through the mininet emulator, for supporting applications with different quality of service (QoS) requirements. A project is required.

Component(s):

Lecture; In Person (P)

Notes:

- Students who have received credit for COEN 447 may not enrol in this course.

COEN 6861 Higher Layer Telecommunications Protocols (4 credits)

Prerequisite/Corequisite:

The following course must be completed previously: ELEC 6851.

Description:

The course starts with the review of the concepts of layered architectures, Open Systems Interconnection (OSI) and Transmission Control Protocol/Internet Protocol (TCP/IP) stacks. Topics covered include cross-layered protocol architectures, advanced transport layer protocols (e.g. Quick UDP Internet Connections (QUIC), Stream Control Transmission Protocol (SCTP), Datagram Congestion Control Protocol (DCCP), Domain Name Server (DNS) architecture, peer-to-peer communications and architectures, Electronic Mail protocols (i.e. Simple Mail Transfer Protocol (SMTP), Post Office Protocol (POP), Internet Message Access Protocol (IMAP), World Wide Web (WWW) architecture, programming, and technologies (e.g. browser, Web server, Hypertext Transfer Protocol (HTTP), static/dynamic pages, Java servlet, Representational State Transfer (REST), the Web of Things (e.g. Constrained Application Protocol (CoAP)), and content delivery over the Web (e.g. Content Delivery Network (CDN) architecture, Dynamic Adaptive Streaming over HTTP (DASH) framework). A project is required.

Component(s):

Lecture

Notes:

- Students who have received credit for this topic under ELEC 6861 may not take this course for credit.

COEN 691 Topics In Computer Engineering I (4 credits)

Component(s):

Lecture

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated b changes to the course title in the graduate class schedule.

COEN 791 Topics In Computer Engineering II (4 credits)

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

ELEC 6031 Fault Tolerance and Resilience of Cyber-Physical Systems (4 credits)

Prerequisite/Corequisite:

The following course must be completed previously: ENGR 6131.

Description:

This course deals with the fundamental principles of fault tolerance and resilience control for cyber-physical systems (CPS). This course covers model-based
techniques for fault diagnosis, fault detection and isolation, reliable system design, control over packet-dropping channel, information dissemination in distributed systems, networked control systems, multi-agent systems, vulnerability of large-scale systems, and various applications related to CPS. It deals with the underlying mathematical theory, analysis, and design of fault- and attack-tolerant systems. A project is required.

Component(s):

Lecture

ELEC 6041 Large-scale Control Systems (4 credits)

Prerequisite/Corequisite:

The following course must be completed previously: ENGR 6131 or equivalent.

Description:

Introduction to large-scale systems and applications. Model-order reduction and minimal realization. Centralized and decentralized fixed modes (CDMs and DEMs). Characterization and computation of DEMs and approximate DEMs. Structured and unstructured DEMs. Quotient fixed modes and stabilizability of decentralized systems by means of linear time-varying control law. Effects of sampling on decentralized control systems. Centralized and decentralized robust servomechanism problem. Decentralized controller design using pole assignment technique and optimization method. A project is required.

Component(s):

Lecture

ELEC 6051 Introduction to Analog VLSI (4 credits)

Description:
Challenges of IC techniques and of VLSI, BJT and MOS processes. Passive components; network models and simulations. Layout design rules and CAD packages. Switch, active resistor, current mirror and voltage references; differential amplifiers, comparators, operational amplifiers, transinductance amplifiers, voltage to current transducers. Noise considerations. Offset and precision techniques. Applications: RF amplifiers, filters, oscillators, current mode IC networks. A project is required.

Component(s):
Lecture

ELEC 6061 Real-time Computer Control Systems (4 credits)

Description:
Introduction to real-time computer control systems; a review of discrete-time signals and systems, difference equations, z-transform; sampled data systems, sample and hold, discrete models; discrete equivalents of continuous-time systems; stability analysis; design specifications; design using root locus and frequency response methods; implementation issues including bumpless transfer, integral windup, sample rate selection, pre-filtering, quantization effects and computational delay; scheduling theory and priority assignment to control processes, timing of control loops, effects of missed deadlines; principles and characteristics of sensors and devices, embedded processors, processor/device interface. A project is required.

Component(s):
Lecture

ELEC 6071 Mixed-Signal VLSI for Communication Systems (4 credits)

Description:
Topics include overview of wireline communication links, mechanisms of signal degradation, modulation formats, TX/RX synchronization options, IC technology limitations, transmitter front-end circuits, receiver front-end circuits, decision circuits, clock and data recovery systems, phase-locked loops, jitter, continuous-time and discrete-time equalizers, system metrics. A project is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course.
- Students who have received credit for ELEC 691 (Mixed-Signal VLSI for Communication Systems) may not take this course for credit.

ELEC 6081 Modern Analog Filter Design (4 credits)

Description:
Review of network analysis. Magnitude and frequency scaling. Magnitude and phase approximation in synthesis of filter functions. Second order active RC filters. Synthesis of all-pole LC ladder filters. Second order switched capacitor filters. Integrated circuit filters. A project is required.

Component(s):
Lecture

ELEC 6091 Discrete Event Systems (4 credits)

Description:
Introduction to discrete-event systems (DES). Modelling (languages, automata and Petri nets). Supervisory control (controllability, modular control and control under partial observation). Architecture (decentralized and hierarchical schemes). Petri nets (modelling and analysis). Timed models. A project is required.

Component(s):
Lecture; Reading

ELEC 6111 Detection and Estimation Theory (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENCS 6161.

Description:
Basic hypothesis testing, cost functions, Bayes and Neyman Pearson tests, the power of a test, sequential tests; estimation, Bayes estimates, maximum a posteriori estimates; the Cramer-Rao inequality, maximum likelihood estimates; composite hypothesis testing, application of estimation theory to phase locked loops, vector representation of signals in noise, application of the Kharhunen-Loeve expansion, complex analytic representation of signals; detection and estimation of signals in white and non-white noise, the matched filter, composite hypothesis testing, random amplitude and phase, multi-path channels, waveform estimation, Wiener filters, Kalman filters. A project is required.

Component(s):
Lecture

ELEC 6131 Information Theory and Error Control Coding (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENCS 6161 or ELEC 6831.

Description:
This course covers Information Theory and Error Control Coding. The content of the course related to information theory includes entropy, discrete memoryless channels, channel capacity and channel coding theorem. In the area of Error Control Coding the course covers an introduction to abstract algebra linear block codes including Hamming, Bose–Chaudhuri–Hocquenghem (BCH), and Reed-

Solomon codes; convolutional codes; introduction to iterative based codes; turbo codes, low-density paritycheck (LDPC) codes; trade-offs between power, bandwidth, data rate and system reliability. A project is required.

Component(s):
Lecture

ELEC 6141 Wireless Communications (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6831.

Description:
Topics include wireless radio link analysis; receiver sensitivity and receiver noise sources; path loss, shadowing, and fading models; area coverage and range calculation; introduction to cellular systems: frequency reuse, trunking and grade of service, sectoring and cell splitting, coverage and capacity. Modulation techniques for mobile communications, spread-spectrum techniques; multiplexing and multiple access techniques; wireless standards from first generation to fourth generation; OFDM: an architecture for the fourth generation. A project is required.

Component(s):
Lecture

ELEC 6151 Information Theory and Source Coding (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENCS 6161.

Description:
Entropy of a source, rate distortion functions, source coding, analog to digital conversion, effects of sampling and quantization, vector quantization, discrete memoryless channels and their capacity, cost functions, channel coding theorem, channel capacity, fundamental concepts of information theory with applications to digital communications, theory of data compression, broadcast channels, application to encryption, DES, public key encryption, computational complexity. A project is required.

Component(s):
Lecture

ELEC 6171 Modelling and Analysis of Telecommunications Networks (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENCS 6161.

Description:
Application of queuing theory to the analysis of the performance of telecommunication systems; Poisson arrival process and its properties; Birth-death processes applied to queuing, service distributions; performance measures of a queuing systems; examples of queuing systems in equilibrium; finite and infinite server and population models; Erlang blocking formulae; method of stages.; Networks

of queues; product-form solution for open and closed queuing networks; computational algorithms for queuing networks; the imbedded Markov chain technique applied to queues with general service distribution, analysis of multiple access techniques, TDMA, FDMA, polling, CDMA, ALOHA and CSMA. A project is required.

Component(s):
Lecture; Reading

ELEC 6181 Real-time and Multimedia Communication over Internet (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6851.

Description:
Review of Internet architecture and protocols. Network impairments: jitter and delay. RTP: transport protocols for real-time data. Packet scheduling, QoS in the Internet: differentiated services, integrated services, Resource reservation protocol (RSVP), Multi protocol label switching (MPLS). Voice/Fax/Video over IP. Internet-to-PSTN. Protocols and standards - H.323, Session Initiation Protocol (SIP) and Media Gateway Control Protocol (MGCP). Internet telephony signaling. Interoperability issues. A project is required.

Component(s):
Lecture

ELEC 6191 Wireless Sensor and Actuator Networks (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6851.

Description:
This course covers wireless sensor and actuator networks (WSAN) platforms in different domains including underwater, ground, and aerial networks. It covers sensors, actuators, and other hardware components in WSANs. Other topics include graph theory, connectivity and coverage, time synchronization and localization, power management, WSAN protocols, and quality of service (QoS). The course provides overview of tools
relevant to WSANs. A project is required.

Component(s):
Lecture

ELEC 6221 Solid State Devices (4 credits)

Description:
Junction theory (PN junctions, Schottky and ohmic contacts, heterojunctions). Structures and characteristics of diodes, solar cells, bipolar transistors, and fundamentals of MOSFETs. Planar silicon junctions and transistors will be designed, fabricated and evaluated in the laboratory, including resistivity measurements, semiconductor cleaning, oxidation, diffusion, photolithography, etching, metallization, and the comparison of design with experimental results. A project is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course.
- This course is cross-listed. Students who have taken the undergraduate equivalent version may not take this course for credit.

ELEC 6231 Design of Integrated Circuit Components (4 credits)

Description:
The structure, characteristics, and design of MOS capacitors and MOSFETs, FinFETs, SOI FETs, velocity-modulation transistors, and HFETs. Role of strain in operation of modern FETs. Planar MOS devices, including capacitors and MOSFETs will be designed, fabricated and evaluated in the laboratory. A project is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have taken the undergraduate equivalent version may not take this course for credit.

ELEC 6241 VLSI Process Technology (4 credits)

Description:
Introduction to basic VLSI technologies; crystal growth, thermal oxidation, diffusion, ion implantation, chemical vapour deposition, wet and dry etching, and lithography. Layout, yield, and VLSI process integration. The lab demonstrates a semiconductor device fabrication process. A project is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have taken the undergraduate equivalent version may not take this course for credit.

ELEC 6251 Microtransducer Process Technology (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6231 or ELEC 6241.

Description:
Overview of micromachining process. Bulk-micromachined structures and devices. Anisotropic etching of silicon; phenomena, processes, geometry, crystal physics. Surface-micromachined structures, devices, processes. CMOS-compatible micromachining. Case-study examples. A project is required.

ELEC 6261 Optical Devices for High-Speed Communications (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6221 or equivalent.

Description:
Overview of optical properties of semiconductors. The fundamental principles for understanding and applying optical fiber technology, fundamental behaviour of the individual optical components and their interactions with other devices. Lasers, LED's, optical fibers, light detectors, optical switches. Concepts and components of WDM and DWDM. A comprehensive treatment of the underlying physics such as noise and distortion in optical communications, light polarization, modulation and attenuation. A project is required.

Component(s):
Lecture

ELEC 6271 Nanoscience and Nanotechnology: Opto-Electronic Devices (4 credits)

Description:
This course covers the fundamental principles of nanoscience and nanotechnology which include principles of quantum mechanics and quantum properties of solid state materials. Properties of metal and semiconducting nanoparticles and their synthesis; Carbon nanostructures and nanotubes; bulk nanostructured materials; Solid disordered nanostructures and nanostructured crystals; quantum wells, quantum wires, and quantum dots and their physical properties; preparation of quantum nanostructures, Introduction to NanoElectroMechanical Systems (NEMS), nanomachining and fabrication of nanodevices. A project is required.

Component(s):
Lecture

ELEC 6281 Principles of Solid State Nanodevices (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6271 or equivalent.

Description:
Theoretical basis of nanodevices. Overview of fundamental quantum phenomena in semiconductors. Electronics in low-dimensional structures (two-dimensional electron gas, quantum wire and dots, electron scattering, transport). High-speed electron devices based on quantum structures (nanoscale MOSFETs, high-electron-mobility transistors, resonant-tunneling diodes and transistors,

superlattice-based transistors). Logic gates based on quantum devices. Quantum optoelectronics (optical transitions in quantum structures, quantum well, quantum dots photodetectors and lasers, quantum cascade lasers). Single electron devices. Carbon nanotube transistors, molecular electronics and spintronics. Nanodevice technology and characterization. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for ELEC 691 (Principles of Solid State Nanodevices) may not take this course for credit.

ELEC 6291 Radiation Detectors for Medical Imaging (4 credits)

Description:
This course covers ionizing radiation and its sources; interactions of ionizing radiation with matter; principles and types of radiation detectors; semiconductor radiation detectors; X-ray imaging modalities and Flat-panel image sensors; photoconductor requirements; image quality metrics and cascaded system model; noise in imaging sensors and detective quantum efficiency; imaging detectors for nuclear medicine. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under ELEC 691 (Radiation Detectors for Medical Imaging) may not take this course for credit.

ELEC 6301 Advanced Electromagnetics (4 credits)

Description:
Maxwell's equations and boundary conditions. Theorems: uniqueness, reciprocity, surface and volume equivalence. Vector potentials and solution of the homogeneous and inhomogeneous wave equations. Waveguides and scattering formulations in rectangular and cylindrical coordinates. Dielectric waveguides. Physical optics. Selected topics in integral and differential equations, ray-optical techniques, and computational methods. Applications to antennas and microwaves. A project is required.

Component(s):
Lecture; Reading

ELEC 6311 Radiation and Scattering of Waves (4 credits)

Description:
Construction of Green’s functions. Canonical problems – waveguide, cylinder, wedge, dielectric slab. Sommerfeld integrals. Impedance boundary conditions. Surface and leaky waves. Asymptotics, method of steepest descent, method of stationary phase. High-frequency

uniform asymptotic methods. Geometrical theory of diffraction. Edge diffraction, creeping waves. Applications to problems in antennas, computational electromagnetics, electromagnetic compatibility, propagation, and scattering. A project is required.

Component(s):
Reading

ELEC 6341 Antennas (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6341.

Description:
Helmholtz equation, Green's function, current element, the ideal dipole, radiation impedance, gain directivity, reciprocity, polarization. Half-wave dipole, antennas above ground, small loop antenna, arrays of antenna, array factor, pattern multiplication array synthesis, mutual impedance, aperture antenna. Hallens integral equation, Pocklingons equation, numerical solution by the method of weighted residuals, and by the moment method, wire grids. Magnetic field integral equation and solid surfaces. Aperture antennas, aperture integration, geometrical optics, physical optics. Geometrical theory of diffraction, wedge diffraction coefficients, applications, multiple diffraction and diffraction by curved surfaces. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for ELEC 7341 may not take this course for credit.
- This is a cross-listed course. Students who have taken the undergraduate equivalent version may not take this course for credit.

ELEC 6351 Modern Antenna Theory (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6341.

Description:
Helmholtz equation, Green's function, current element, the ideal dipole, radiation impedance, gain directivity, reciprocity, polarization. Half-wave dipole, antennas above ground, small loop antenna, arrays of antenna, array factor, pattern multiplication array synthesis, mutual impedance, aperture antenna. Hallens integral equation, Pocklingons equation, numerical solution by the method of weighted residuals, and by the moment method, wire grids. Magnetic field integral equation and solid surfaces. Aperture antennas, aperture integration, geometrical optics, physical optics. Geometrical theory of diffraction, wedge diffraction coefficients, applications, multiple diffraction and diffraction by curved surfaces. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for ELEC 7341 may not take this course for credit.

ELEC 6361 Acoustics (4 credits)

Description:
Sound generation and propagation in elastic media; conversion between acoustical, electric and mechanical energy. Lumped-parameter approximations, sound in rooms, underwater acoustics, microphones; loudspeakers and audio communications problems; noise and vibration control problems. A project is required.

Notes:

- This is a cross-listed course. Students who have taken the undergraduate equivalent version may not take this course for credit.

ELEC 6371 Design of Wireless RF Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6391.

Description:
Introduction to wireless systems. Noise and distortion in microwave systems. Antennas and propagation. Amplifiers. Mixers. Transistor oscillators and frequency synthesizers. Modulation techniques. Receiver design. Use of RF CAD tools. A project is required.

Component(s):
Lecture

ELEC 6381 Techniques in Electromagnetic Compatibility (4 credits)

Description:
Introduction to EMC procedures, control plans and specifications. Radiated and conducted susceptibility and emission testing. Introduction EMC antennas, antenna concepts, electric and magnetic dipoles, biconical dipoles, conical log spiral antennas, setting up fields for susceptibility testing, measuring radiation from equipment. Coupled transmission lines, pulse propagation, closely spaced parallel transmission lines, capacitive coupling, inductive coupling, shielding against magnetic fields. Shielding and enclosures, electric and magnetic field screening mechanisms, shielding effectiveness, grounding considerations. EMC test facilities, screened rooms, TEM cells. Signals and spectra, intermodulation, cross-modulation, the spectrum analyzer. Noise and pseudo-random noise, noise performance of measurement/receiving systems, noise equiv Lecture. alent bandwidth, noise figure, antenna noise temperature and S/N ratio. A project is required.

Component(s):
Lecture

ELEC 6391 Microwave Engineering (4 credits)

This course is cross-listed course with ELEC 453.

Description:
Properties of waveguides, striplines and microstrips. Scattering parameters. Butterworth and Chebyshev impedance transformers. Microwave couplers, cavities, and Fabry-Perot resonators. Periodic structures. Microwave filter design. Faraday rotation and non-reciprocal devices. A project is required.

Component(s):
Lecture; Laboratory

Notes:

- This course is cross-listed course with undergraduate course ELEC 453. Students who have received credit for ELEC 453 may not enrol in this course.

ELEC 6411 Power Electronics I (4 credits)

This course is cross-listed course with ELEC 433.

Description:
Introduction to power electronic systems. Semiconductor switches. Basic power converter configurations. Line commutated controlled and uncontrolled ac-dc rectifiers. Basic dc-dc converters. Pulse width modulation techniques. Basic dc-ac converters. Switching power supplies. Applications to industrial power supplies and motor drives. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed course with ELEC 433. Students who have received credit for ELEC 433 may not enrol in this course.
- Students who have received credit for ELEC 433 may not enrol in this course.

ELEC 6421 Renewable Energy Systems (4 credits)

This course is cross-listed course with ELEC 438.

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6411.

Description:
This course covers electrical basics and models of solar energy (photo-voltaics); electrical power from wind energy (including turbine

operation); electrical power from wave and tidal energy; electrical power from micro-hydro and biomass waste to energy. Fundamental energy equations will be derived from physics and the electrical power equations developed. Engineering design implications will be discussed. Design assignments are given to reinforce the engineering design based on fundamental physics. A project is required.

Component(s):
Lecture; Tutorial

Notes:

- This course is cross-listed course with ELEC 438. Students who have received credit for ELEC 438 may not enrol in this course.

ELEC 6431 Advanced Electrical Machines and Drives (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6471 or ELEC 6491.

Description:
Transient modelling of electrical machines. ABC, Park's transform and d,q, two axis modelling of synchronous and induction machines. Application of the advanced models to machine transients, for example, direct on line starting or reclosing operation. Vector control of AC machines including permanent magnet machines. Differences between permanent magnet AC and brushless DC machines. Switched reluctance motor modelling and operation. Modelling of losses in machines. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under ELEC 691 (Advanced Electrical Machines and Drives) may not take this course for credit.

ELEC 6461 Power Electronics II (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6411.

Description:
Circuits and operating principles of self commutated dc-dc and dc-ac converters. One and four quadrant dc-dc converters. Single-phase and three-phase voltage source and current source inverters. Pulse width modulation strategies. Resonant converters. Soft switching techniques. Isolated dc-dc converters. Application to switch-mode power supplies, uninterruptible power supplies and ac motor drives. A project is required.

Component(s):
Lecture

ELEC 6471 Hybrid Electric Vehicle Power System Design and Control (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6411.

Description:
Introduction to Electric Vehicles (EV), Hybrid Electric Vehicles (HEV). Vehicle design fundamentals. Traction motors for EV/HEV propulsion. On-board energy sources and storage devices: high-voltage traction batteries, fuel cells, ultra-capacitors, flywheels. Power electronic converters and control. Various EV/HEV/Fuel Cell Vehicle topologies and modelling. Energy management strategies. Practical design considerations. Engineering impact of electric, hybrid electric, and fuel cell vehicles. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed course with undergraduate course ELEC 439. Students who have received credit for ELEC 439 may not enrol in this course.

ELEC 6481 Computer-Aided Analysis and Design of Electric Machines (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6411.

Description:
This course uses machine design software to aid in the analysis and design of electrical machines, which is offered in a computer aided design (CAD) environment. The emphasis is on the design of electrical machines for renewable energy and electric vehicle applications. Emphasis is placed on permanent-magnet and switched reluctance machines, although machines of importance, like the induction machine, are also discussed. Magnetic equivalent circuits for a magnet and a typical machine radial field geometry are developed which lead naturally to sizing equations. Other geometries and Eddy current and hysteresis core loss models are presented. The torque angle curves of the switched reluctance machine are developed, which lead to design concepts. The synchronous reluctance machine is introduced. A project is required.

Component(s):
Lecture

ELEC 6491 Controlled Electric Drives (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6411.

Description:

Elements of a drive system; characteristics of common mechanical systems; drive characteristics; operation in one, two or four quadrants. Fully controlled rectifier drives; braking of DC motors; control of DC motors using DC/DC converters. Control of polyphase induction motors; voltage-source and current source inverter drives; frequency-controlled induction motor drives; introduction to vector control of induction motor drives; field oriented control (FOC); sensor-less operation. Control of synchronous motors; permanent magnet motors. Switched reluctance motor (SRM) drives; stepper motors. Brush-less DC (BLDC) motor drives; low-power electronic motor drives. A project is required.

Component(s):
Lecture

ELEC 6601 Digital Signal Processing (4 credits)

Description:
Discrete-time signals and systems, difference equation; the discrete Fourier series and transform; the Z-transform and LTI systems; sampling of continuous-time signals. Reconstruction of signals using interpolation, sampling of discrete-time signals, discrete-time decimation and interpolation, changing the sampling rate by integer and non-integer factor; multirate signal processing, polyphase decomposition, multirate filter banks; digital processing of analog signals, A/D and D/A converters; linear phase and non-linear phase systems, all-pass and minimum phase systems; recursive and non-recursive digital filters, common digital filter structures, common design approaches for digital filters; random signals; linear adaptive filters, Weiner and Least-Mean-Square filters. A project is required.

Component(s):
Lecture

ELEC 6611 Digital Filters (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6601.

Description:
Approximation and design of recursive and non-recursive digital filters. Transformations. Stability. Digital filter structures including wave and lattice structures. Effect of quantization, noise and limit cycles. Hardware implementation. Digital filter applications. A project is required.

ELEC 6621 Digital Waveform Compression (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ELEC 6601; ENCS 6161.

Description:
Numerical representation of waveform information; common waveform communication systems; statistical models used for waveforms; visual psychophysics. Differential PCM, motion estimation/compensation for video compressions. Transform coding: run length coding, Huffman and arithmetic coding, control of Q factor and Q table, segmentation/contour/edge based coding; pre-processing and post-processing strategies. Vector quantization. Sub-band coding and Wavelet Transform. Zero trees. Channel concerns: robustness, error

recovery, masking video/image bit rate source models. Coding of two-level graphics. Review of standards: JPEG, MPEG, H.261. A project is required.

Component(s):
Lecture

ELEC 6631 Video Processing and Recognition (4 credits)

ELEC447

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6601.

Description:
This course focuses on theoretical foundations of video processing: human vision, colour models, visual frequencies, convolution, frequency analysis, sampling, video capture and display, and video models. Motion characterizes a video and the course covers object transformations, motion models, motion and homography estimation. A video consisting of images and basics of image processing will be presented: filtering, multi-scale analysis, histogram and feature extraction. The course covers video applications: video enhancement including quality assessment, frame prediction, denoising; video compression including statistics of signal source, transform coding, predictive coding; and video recognition including object segmentation, object tracking, and 3D shapes from 2D images. The course introduces deep-learning video processing with a case study, machine-learning basics (regression, classification), deep neural networks, and convolutional neural networks. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with ELEC 447. Students who have received credit for ELEC 447 may not enrol in this course.

ELEC 6641 Two-dimensional Signal and Image Processing (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6601.

Description:
Two-dimensional signals and systems: linear system fundamentals, Fourier analysis of two-dimensional signals, discrete Fourier transform, two-dimensional FIR and IIR filter design and implementations. Image enhancement and restoration: smoothing and sharpening, noise reduction, order statistics filtering, inverse filtering, Wiener filtering, constrained least-square filtering. Wavelets and filter banks: multiresolution concept, perfect reconstruction, one- and two-dimensional wavelet transforms. Introduction to image compression: lossy and lossless compression, image compression standards. Introduction to image segmentation and edge detection. Color image processing: color image representation, color space conversion, pseudo and full color image processing. A project is required.

Component(s):
Lecture

Notes:

- Students who have taken ELEC 7631 may not take this course for credit.

ELEC 6651 Advanced Signal Processing (4 credits)

ELEC 442

Prerequisite/Corequisite:
The following courses must be completed previously: ELEC 6601; ENCS 6161.

Description:
This course focuses on fundamental principles, methods and applications of statistical and adaptive signal processing. It begins with an introduction to random signal processing basics, including random variables and sequences, linear systems with stationary inputs, linear signal models, and power spectral density estimation. It then covers optimum linear filtering and prediction, namely, Wiener filters, constrained Minimum Mean Square Error (MMSE) estimation, array/space-time processing and beamforming, and forward and backward linear prediction. The course also covers adaptive filtering methods including least mean square filters, least-square filters, recursive least square filters, and the Kalman filter. Finally, the course ends with machine learning principles for signal processing including Bayesian learning, support vector machine, and neural network basics. A project is required.

Component(s):
Lecture

Notes:

- Students who have taken ELEC 7601 may not take this course for credit.
 Students who have received credit for ELEC 442 may not enrol in this course.

ELEC 6661 Medical Image Processing (4 credits)

Description:
Topics include principles and techniques used in the processing and analysis of medical images; image quality metrics, denoising medical images, quantification, rigid and deformable registration; similarity metrics such as mutual information (MI); images from the most common medical imaging modalities (X-ray, CT, MRI and ultrasound) will be used. A project is required.

Component(s):
Lecture

Notes:

- Students who have taken ELEC 691 (Medical Image Processing) may not take this course for credit.
- This course is cross-listed course with ELEC 444. Students who have received credit for ELEC 444 may not enrol in this course.

ELEC 6671 Biological Signal Processing (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6601.

Description:
This course covers signal processing through discussion of current bioengineering activities which rely on signal processing and include assessment of neural function with simultaneous collection of electroencephalogram (EEG) and functional MRI data; the noninvasive assessment of cardiac autonomic regulation using electrocardiography; assessment of neural function using near-infrared spectroscopy (NIRS); assessment of muscle activity using electromyography (EMG). Topics include modern spectral analysis, time-frequency analysis (short-time Fourier transforms and wavelets); signal modelling; multivariate analyses and adaptive filtering. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for ELEC 691 (Biological Signal Processing) may not take this course for credit.
- This is a cross-listed course with the undergraduate course ELEC 445. Students who have received credit for ELEC 445 (Biological Signal Processing) may not take this course for credit.

ELEC 6821 Fundamentals of Network Security and Management (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6851

Description:
This course covers fundamental topics in network security and management, such as basic cryptography, authentication, message integrity, firewalls, security protocols, virtual private networks (VPNs), Management Information Bases (MIBs), and Simple Network Management Protocol (SNMP). It will also address emerging trends such as decentralized ledger techniques (blockchain and IOTA), and federated network management. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course ELEC 465.

ELEC 6831 Digital Communications (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6601.

Description:
Topics include random processes and linear systems; baseband modulation/demodulation, optimal receivers in AWGN, correlation and matched-filter receivers, pulse shaping for band-limited channels; bandpass modulation techniques such as PAM, PSK, DPSK, FSK, QAM; synchronization, timing and carrier recovery, maximum-likelihood carrier phase and symbol timing estimation; error control coding, linear block codes, syndrome-based decoding, system bit error rate and coding gain. A project is required.

Component(s):
Lecture

ELEC 6841 Advanced Digital Communications (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ELEC 6831; ENCS 6161.

Description:
Digital signaling over band-limited channels: signal design for band-limited channels, maximum likelihood sequence detection, equalization techniques, e.g., zero-forcing, minimum mean squared error, adaptive equalization. Advanced coding and modulation: concatenated coding with iterative decoding, coded modulation techniques. Diversity techniques for fading channels. Synchronization techniques: carrier and timing recovery, frequency estimation techniques, frame and network synchronization, maximum-likelihood estimation and Cramer-Rao bounds. A project is required.

Component(s):
Lecture

ELEC 6851 Telecommunications Networks (4 credits)

Description:
Communication Networks and Services; Introduction to Layered Network Architectures; Transmission systems and the Telephone Network: multiplexing circuit switching, routing and signaling; Peer-to-Peer Protocols: ARQ protocols, data link controls, packet multiplexing, Multiple Access Communications: Aloha, CSMA, reservation schemes, polling, token-passing ring, LAN standards, LAN Bridges; Packet-switching Networks: Datagrams and virtual circuits; TCP/IP Architecture: Internet protocol, transmission control protocol. A project is required.

Component(s):
Lecture

ELEC 6871 Fiber-Optic Communication Systems and Networks (4 credits)

Description:
Overview of the basics of optical transmitters, optical receivers, optical fibers, optical amplifiers, and SDH/SONET. Design of optical

fiber amplifiers: fiber Raman amplifiers and Erbium-doped fiber amplifiers (EDFA), theories, configurations, simulation, designs, applications, requirements for optical networks. Optical transmitters: characteristics and requirements for optical networks. Optical receivers: characteristics, requirements, noise analysis. Optical systems and performance: system architectures, design guidelines, long-haul systems, dispersion management. Coherent optical systems: ASK, FSK, DPSK, system performance. DWDM systems and networks: WAN and MAN system performance, TDM, subcarrier multiplexing, CDMA, WDM network design, network survivability. Optical solition systems: fiber solitions, loss-managed solitions, dispersion-managed solitions, impact of amplifier noise, high-speed solition system. Photonic packet switching: OTDM synchronization, header processing, burst switching. Access optical networks: architectures, PON. A project is required.

Component(s):
Lecture

ELEC 6881 Fundamentals and Applications of MIMO Communications (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6141 or ELEC 6841.

Description:
Multiple Input Multiple Output (MIMO) communication systems and wireless channel models; Diversity techniques and array processing; MIMO channel capacity; Space-time black and trellis codes; Spatial multiplexing and layered space-time architectures, diversity-versus-multiplexing tradeoff; Differential and unitary space-time coding; MIMO OFDM and space-frequency coding; Concatenated coding and iterative decoding for MIMO systems; Applications of MIMO in wireless systems. A project is required.

Component(s):
Lecture

ELEC 6891 Broadcast Signal Transmission (4 credits)

This is a cross-listed course.

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6831.

Description:
This course covers signal definition, human eye limitations, pixel representation schemes, serial digital interface (SDI); image formats (1080i, 720i, 4k, 8k); compression schemes: H.264/265; modulation and coding techniques used in broadcasting. This course also covers terrestrial transmission standards such as DVB-T2, ATSC-3; satellite broadcasting standards such as DVB/S2; MPEG transport stream (MPEG-TS), program specific information (PSI), program ID (PID), program association tables (PAT), program map table (PMT), conditional access, program clock reference (PCR); multiplexing and IP encapsulation, single program transport stream (SPTS) and multiple program transport stream (MPTS); video storage and retrieval. A project is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course.
- Students who have received credit for ELEC 691 (Transmission in Broadcast Signal) may not take this course for credit.

ELEC 691 Topics in Electrical Engineering I (4 credits)

Component(s):
Lecture; Reading

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

ELEC 6961 Graduate Seminar in Electrical and Computer Engineering (1 credits)

Description:
Students identify a technical topic in the field of Electrical and Computer Engineering and after getting approval from the instructor of the course, prepare a presentation about the topic. The topic is based on one or a small number of articles in reputed journals in the field. Students present their technical topic in the class and answer oral questions from other students and the instructor. Students are expected to attend a significant number of presentations by other students and get involved by asking questions.

Component(s):
Seminar

ELEC 7151 Broadband Communications Networks (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENCS 6171.

Description:
Characterization of traffic sources, data, voice and video; ATM protocol architecture, ATM switching architectures, performance evaluation of the ATM multiplexer; Call admission control in ATM networks; Traffic management in ATM, TCP/IP over ATM and wireless ATM Fluid flow approximation, z-transform techniques, and blocking for multiclass flows. A project is required.

ELEC 7441 Design of Power Electronic Circuits (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENCS 6461.

Description:
Design driving factors. Characteristics of basic converter topologies, including resonant and soft switching circuits. Characteristics and

limitations of power semiconductors as switching devices. Design considerations for gate drives, snubbers, power filters and protection circuits. Printed circuit board and thermal design. Application to the practical design of typical power converter systems. A project is required.

Component(s):
Lecture

ELEC 7451 Power System Compensation (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ELEC 6411.

Description:
Steady state and dynamic characteristics of transmission systems. Theory of line compensation and reactive power control; series and shunt passive compensation. Principles of operation of static compensators and basic configurations; series, shunt and shunt-series. Flexible ac transmission systems (FACTS). Line and self commutated controllers; configurations and control aspects. Applications to distribution systems. Performance evaluation and practical applications of static compensators. A project is required.

ELEC 791 Topics in Electrical Engineering II (4 credits)

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated b changes to the course title in the graduate class schedule.

Engineering and Computer Science Courses

ENCS 5721 Composition and Argumentation for Engineers (3 credits)

Description:

Fundamentals of English composition and argumentation: grammar, reasoning and persuasion; persuasive proofs; argumentation; structuring and outlining: the problem statement; the body; and the conclusions. Language and persuasion for effective communication in professional engineering. Cultivation of a writing style firmly based on clear and critical thinking skills. Lectures: three hours per week.

Component(s):

Lecture three hours per week

Notes:

- This course cannot be taken within the credit requirements of the program.

ENCS 591 Topics in Engineering and Computer Science (4 credits)

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

ENCS 6001 Elements of Engineering Mathematics (3 credits)

Description:

Functions of one variable, Taylor's series expansion, review of differentiation, integration and solution of ordinary differential equations. Functions of several variables, partial derivatives, multiple integrals, introduction to partial differential equations, wave equation and diffusion equation. Matrix and vector analysis, characteristic value problems, orthogonal functions; introduction to statistics and numerical methods. Lectures: three hours per week.

Component(s):

Lecture

ENCS 6021 Engineering Analysis (4 credits)

Description:

Sturm-Liouville problem; orthogonal functions; ordinary differential equations with variable coefficients and power series solutions;

integral transforms; partial differential equations; boundary value problems; applications to engineering problems. A project is required.

Component(s):
Lecture

ENCS 6031 Cultures of Engineering Practice (4 credits)

Description:
Topics include historical emergence of engineering throughout the world; cross-cultural dimensions of contemporary engineering practice; qualitative research methods for cultural analysis; technical communication across cultures. Case studies and a project are required.

ENCS 6041 Creativity, Innovation, and Critical Thinking (4 credits)

Description:
Explanations of innovative and creativity thinking; approaches to problem solving, psychology of invention; diffusion of innovation; leadership through critical thinking; design creativity; modern and historical examples of innovation; and cognitive approaches to scientific and technological thinking. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for ENCS 692 Critical and Creative thinking for Engineers may not take this course for credit.

ENCS 6042 Communication Techniques for the Innovation Process (4 credits)

Description:
This course introduces theories of client-centred design. Topics and skills covered include qualitative data collection, customer development communication, and user interview techniques. Students will have hands-on experience in customer validation, audience appropriate message creation, and advanced presentation techniques for the innovation process. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for Communication Strategies for Innovation and Design under ENCS 692 may not take this course for credit.

ENCS 6043 Seminar in Innovation Process (1 credits)

Prerequisite/Corequisite:
The following courses must be completed previously or concurrently: ENCS 6041 and ENCS 6042.

Description:
Registration is restricted to students enrolled in the Graduate Certificate in Innovation, Technology and Society. The seminar integrates theoretical concepts in innovation and communication processes in preparation for projects in the certificate practicum.

Component(s):
Seminar; Reading

ENCS 6044 Practicum in Innovation Process (6 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ENCS 6041, ENCS 6042 and ENCS 6043. Registration is restricted to students enrolled in the Graduate Certificate in Innovation, Technology and Society.

Description:
The practicum takes place in the Concordia District 3 Centre for Innovation and Entrepreneurship. Students develop innovation projects under the supervision of academic advisors and District 3 instructional personnel.

Component(s):
Practicum/Internship/Work Term

Notes:

- This course is graded on a pass/fail basis.

ENCS 6111 Numerical Methods (4 credits)

Description:
Numerical solution of partial differential equations; weighted residuals techniques with emphasis on finite differences and finite elements; convergence, stability and consistency analysis; solution of integral equations; boundary value problems; discrete Fourier series and fast Fourier transform. A project is required.

Component(s):
Lecture; Reading

ENCS 6141 Probabilistic Methods in Design (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENCS 6011 or equivalent.

Description:
Elements of probability theory, decision models, expected costs and benefits, models from random occurrences, extreme value statistics, Monte Carlo simulation, reliability analysis, general applications to engineering design problems. A project is required.

ENCS 6161 Probability and Stochastic Processes (4 credits)

Description:
Axioms and rules of probabilities, Bayes' Theorem, binary communication systems, Bernoulli trials and Poisson Theorem, random variables, distributions and density functions, moments, correlation, Chebyshev and Markov's inequalities, characteristic functions, Chernoff inequality, transformation of random variable, random processes, stationarity, Bernoulli, Random Walk, Poisson, shot noise, random telegraph, and Wiener processes, stopping time; Wald's equation, elements of Renewal Theory, Mean-Ergodic Theorem, auto and cross-correlation functions, correlation time, auto-correlation receiver, Wiener-Khinchin Theorem, power spectral density, linear system with stochastic inputs, matched filtering. Project: two hours per week.

Component(s):
Lecture

Notes:

- Students who have received credit for ELEC 6161 may not take this course for credit.

ENCS 6181 Optimization Techniques I (4 credits)

Description:
The optimization problem; classical optimization; one dimensional search techniques; unconstrained gradient techniques; quadratically convergent minimization algorithms; constrained optimization; constrained gradient techniques; penalty-function methods; applications. Project: two hours per week.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course ELEC 482. Students who have completed ELEC 482 may not take this course for credit.

ENCS 6191 Fuzzy Sets and Fuzzy Logic (4 credits)

Description:
Fuzzy sets, operations on fuzzy sets, fuzzy relations; fuzzy logic: connectives, implication functions, representation of fuzzy rules and fuzzy logic based reasoning; fuzzy logic in planning and control: Zadeh's Generalized Modus Ponens type reasoning, Mamdani type reasoning, fuzzy clustering based system identification and Sugeno type reasoning; case studies. Projects on selected applications.

Component(s):
Lecture

ENCS 6721 Technical Writing and Research Methods for Scientists and Engineers (3 credits)

Description:
This course provides graduate students with the research writing and presentation skills that are essential in academic and professional contexts. Students develop expertise and confidence in research methods, critical reading, crafting thesis statements, leading and participating in discussions, revision/editing and peer review, maintaining research dossiers and report writing.

Component(s):
Lecture

Notes:

- This course cannot be taken within the credit requirements of any graduate Engineering and Computer Science program, with the exception of the Computer Science Graduate Diploma, the Chemical Engineering Graduate Diploma, the Master of/Magisteriate in Engineering (MEng) and the Applied Computer Science MApCompSc
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ENCS 6201 Ethics and Professionalism (1 credits)

Description:
This course introduces students to the wide spectrum of roles and responsibilities that guide the professional practice of engineers. The course covers professionalism, the engineering code and ethical practice of engineers with special reference to Quebec and Canada. The course also provides students with a basic understanding of legal aspects such as intellectual property, occupational health and safety, contracts, and liability that are relevant to professional practice of engineers.

Component(s):
Lecture one hour per week.

ENCS 6811 Optical Networking: Architectures and Protocols (4 credits)

Description:
This course introduces advanced concepts and protocols of modern telecommunication networks based on Photonic technology. The basics of optical communications networks will be introduced, including the enabling technology, and the main emphasis will be on network architectures and associated protocols. This includes: orientation of transport networks and their evolution (Ring and Mesh topologies); Wavelength Division Multiplexing (WDM); wavelength-routed networks; wavelength conversion; lightpath routing protocols

(static, dynamic, adaptive routing and traffic grooming) and optimization problems; control and management protocols and distributed provisioning; survivable network design (proactive and reactive); fault-management and various network restoration protocols; convergence of optical networks and the Internet (IP/WDM) and Generalized Multi Protocol Label Switching (G-MPLS). There will be various assignments in which students will be involved in research projects. Knowledge of telecommunication systems and a background in network simulation is needed. Project.

Component(s):
Lecture; Reading

ENCS 6821 Development and Global Engineering (4 credits)

Description:
This is an introductory course in international development and global engineering for graduate students. Topics may include evolution of development, globalization, development projects, planning and analysis, and participatory data gathering. A project is required.

Component(s):
Lecture

ENCS 691 Topics in Engineering and Computer Science (4 credits)

Description:
Subject matter will vary from term to term and from year to year.

Component(s):
Lecture; Reading

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

ENCS 692 Topics in Engineering and Computer Science (1 credits)

Description:
Subject matter will vary from term to term and from year to year.

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

ENCS 6921 Industrial Stage and Training (4 credits)

Prerequisite/Corequisite:
Students must have completed at least twenty credits in the program prior to enrolling and must have an internship placement offer. Permission of the Department Co-op Program Academic Director or Graduate Program Director is required.

Description:
This course must be completed under the supervision of the Department Co-op Program Academic Director or Graduate Program Director. Each student receives an assessment from the Departmental Co-op Program Academic Director or Graduate Program Director in consultation with the industry supervisor and the faculty advisor.

Component(s):
Workshop; Practicum/Internship/Work Term

Notes:

- A Canadian work permit is required
- Students who have received credit for ENCS 6931 Industrial Stage and Training may not take this course for credit.

ENCS 8011 PhD Seminar (2 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENCS 8511 Doctoral Research Proposal.

Description:
The PhD Seminar is designed to train students to communicate the results of their research projects to the community and participate in research discussions. The student's evaluation is based upon attendance in all seminars, a report on the student's thesis research under the direction of the thesis supervisor(s), and a presentation.

Component(s):
Seminar

Notes:

- This course is assessed on pass/fail basis.
- Students should enrol in this course once they have sufficiently progressed into their research, normally after 6 months (12 months for part-time students) of being admitted to candidacy, which is normally after 24 months (48 months for part-time students) of residency, and must be completed before the submission of the thesis.

ENCS 8501 Comprehensive Examination (0 credits)

Description:
Students must take a comprehensive examination, which may be both written and oral. Students will be assessed on the basis of written and oral examinations of fundamentals related to their field of research. The comprehensive examination will normally be administered by a committee (the Comprehensive Examination Committee) consisting of the supervisory committee, at least one member external to the candidate's program and other members appointed at the discretion of the supervisory committee. Students should consult the program regarding specific examination procedures and requirements.

Component(s):
Thesis Research

Notes:

- Normally the comprehensive examination is taken when course work has been completed and within 12 months (24 months for part-time) after the first registration as a full-time or part-time student in a PhD program. Students who fail this examination are permitted to take it a second time in the following term. Students failing a second time are withdrawn from the program.

ENCS 8511 Doctoral Research Proposal (6 credits)

Prerequisite/Corequisite:
Successful completion of ENCS 8501 Comprehensive Examination is required.

Description:
The goal of the doctoral research proposal is to focus the student's PhD research for the dissertation. The proposal includes an extensive critical review of previous research on the subject of the thesis, and a detailed research plan of action and expected milestones. Students defend their doctoral research proposal before a committee that will normally be comprised of the same members as the comprehensive examination committee.

Component(s):
Thesis Research

Notes:

- The proposal may be accepted, returned for modifications, or rejected. A student whose proposal is accepted will be admitted to candidacy for the PhD. The rejection of a proposal will result in the student's withdrawal from the program. Students must pass the doctoral research proposal within 24 months (48 months for part-time) after the first registration as a full-time or part-time student in a PhD program.

ENGR 6071 Switched and Hybrid Control Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6131 or equivalent.

Description:
Review of linear control design techniques for nonlinear systems and their limitations; introduction to Lyapunov stability, Lyapunov functions and LaSalle's invariance principle; introduction to switched and hybrid systems using piecewise-affine systems as a

motivating example; modelling and simulation of switched and hybrid systems; switching policies, hybrid automata and executions; Lyapunov stability analysis of switched and hybrid systems; stability as a convex optimization problem; Lyapunov-based control of switched and hybrid systems; controller design as a non-convex problem; stability analyses and the controller design problems; dynamic programming and optimal control techniques; extensive examples from simplified models of industrial problems in the aeronautical, automotive and process industries. The course includes a computer aided controller design project.

Component(s):
Lecture

ENGR 6121 Control of Multi-Agent Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6131.

Description:
This course reviews stability and systems theory. It covers basics of nonlinear systems, Lyapunov theory, and graph theory related to multi-agents. The course focuses on spectral graph theory, Voronoi diagrams and Delaunay triangulations, cooperative control, formation control, coverage control, and distributed estimation over multi-agents. Additional topics include cooperative localization, leader-follower networks, and application to sensor networks. A project is required.

Component(s):
Lecture

ENGR 6131 Linear Systems (4 credits)

Description:
State-space representation of dynamic systems, canonical realizations, solutions, modal decomposition, stability. Controllability and observability, minimal realizations, state feedback, pole placement, observers, observer-based controllers. Introduction to optimal control, linear quadratic regulator, the Kalman filter. Limitation on performance of control systems, introduction to robustness. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed course with the undergraduate course ELEC 481. Students who have received credit for ELEC 481 may not take this course for credit.

ENGR 6141 Nonlinear Systems (4 credits)

Prerequisite/Corequisite:

The following course must be completed previously: COEN 6131.

Description:
Dynamic systems: definitions and notations; nonlinear differential equations; Lipschitz continuity; linearization; describing functions; phase plane analysis; Lyapunov stability; Popov and circle criteria; limit cycles. A project is required.

Component(s):
Lecture

ENGR 6151 Continuum Mechanics (4 credits)

Description:
This course presents the macroscopic mechanical behaviour of continuously distributed solid and fluid materials. This is a fundamental graduate course in the field of mechanical or aerospace engineering, which covers basic principles of continuum mechanics and their engineering applications. All laws of continuum mechanics are formulated in terms of quantities that are independent of coordinates. Thus, in this course, first the concept of tensors is presented in detail as the linear transformation. This is followed by the formulation of the kinematics of very small and large deformation and the description of stresses and the basic laws of continuum mechanics common to all materials. Finally, constitutive equations governing the behaviours of idealized materials, including the elastic, hyperelastic and viscous materials, are presented as applications of these laws. A project is required.

Component(s):
Lecture

ENGR 6161 Sensors and Actuators (4 credits)

Description:
Elements of smart sensors and systems and their structures; properties of various smart materials including piezoelectric, pyroelectric, shape memory alloys, Rheological fluids, piezoresistive and magnetostrictive; physical and mathematical basis of smart materials; characterization of smart multi-functional materials; sensors and actuators in mechatronics; design and fabrication of sensors and actuators by micromachining; survey of classical system theory; design of sensors and actuators for applications in industrial and medical robotics, haptics, and other systems such as aerospace and smart structures. The students are required to undertake a project work involving design of smart sensors/actuators for specific applications.

Component(s):
Lecture

ENGR 6191 Introduction to Biomedical Engineering (4 credits)

Description:
The origin and characteristics of biological potentials: nerve, muscle, heart, brain; the measurement of biological events; instrumentation systems: electrical safety, biomechanics, biomaterials, orthopaedic engineering; biomedical engineering applications/implications in industry. Project on a current topic.

Component(s):

Lecture

ENGR 6201 Fluid Mechanics (4 credits)

Description:
Fundamental concepts of fluid mechanics; transport phenomena; stress-strain relation; equations of motion; exact solutions; dynamic similarity; specialized equations; laminar boundary layers; flow over immersed bodies; introduction to turbulent flow. Projects on selected topics.

Component(s):
Lecture

ENGR 6221 Microfluidic Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201 or equivalent.

Description:
Introduction to microfluidics: continuum fluid mechanics, non-continuum regimes, molecular approach. Review of classical fluid mechanics: gas flows, liquid flows, two-phase flows. Microfluidic effects: low Reynolds number flows and chaotic mixing, electrokinetics, surface tension effects and electrowetting. Electrostatic/electromagnetic/piezoelectric actuation of microfluidic systems. Methods in microfluidics: computation, experimentation. Microfluidic components: microchannels, micromixers, micropumps, microvalves, microsesors. Overview of microfluidic applications: lab-on-chip devices, microstructured fuel cells. A project is required.

Component(s):
Reading

ENGR 6231 Microfluidic Devices for Synthetic Biology (4 credits)

Description:
Topics include introduction to microfluidic components (pumps, valves, automation), programming microfluidics, fabrication techniques, microfluidic paradigms, and applications for chemical and biological analysis; introduction to synthetic biology, biological parts and their properties, network structure and pathway engineering, synthetic networks, manipulating DNA and measuring responses, basic behaviour of genetic circuits, building complex genetic networks; integration of mircofluidics and synthetic biology; economic implications. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for ENGR 691 (Microfluidic Devices for Synthetic Biology) may not take this course for credit.

- This course is cross-listed with the undergraduate course COEN 434. Students who have received credit for COEN 434 may not take this course for credit.

ENGR 6241 Hydrodynamics (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201.

Description:
Fundamental concepts of ideal flow; irrotational flow patterns; kinematics of flow; potential theory; standard flow patterns; conformal transformation; Cauchy-Riemann condition; complex operator; simple engineering applications. A project is required.

Component(s):
Reading

ENGR 6251 The Finite Difference Method in Computational Fluid Dynamics (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201.

Description:
Classification of second order partial differential equations, boundary conditions. Finite difference discretization of equations, truncation error, explicit and implicit formulations. Numerical stability, consistency and convergence. Time dependent (parabolic) equations, explicit and implicit discretization, stability, convergence. Steady state (elliptic) equations, explicit and implicit discretization, iterative and direct solution methods. Hyperbolic equations. Formulation of flow problems and applications to incompressible, compressible and transonic inviscid and viscous flows are interspersed throughout the course. Project on specific topic or applications.

Component(s):
Lecture; Reading

ENGR 6261 The Finite Element Method in Computational Fluid Dynamics (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201.

Description:
Classification of second order partial differential equations, boundary conditions. The finite element method, simple examples, assembly rules, solution of linear systems of equations. Forming the modules of a general FEM computer code. The variational approach, variational principles and stationary functions. Elements and interpolation functions. The weighted residual approach Rayleigh-Ritz, least squares, subdomain and collocation, weak Galerkin formulation. Formulation of flow problems and applications to incompressible, compressible and transonic inviscid and viscous flows are interspersed throughout the course. Project on specific topic or applications.

Component(s):

Lecture; Reading

ENGR 6281 Modelling Turbulent Flows (4 credits)

Description:
Computational methods in fluid mechanics, the Reynolds-averaged equations, scales of turbulence, two-point correlation tensors, algebraic models, one equation and two equation models, Boussinesq approximation, nonlinear constitutive relations, types of turbulent flows, multiple time scales and stiff differential equations, solution convergence and grid sensitivity, brief introduction to advanced models. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for ENGR 691 (Modelling Turbulent Flows) may not take this course for credit.

ENGR 6291 Rheology (4 credits)

Description:
Viscoelasticity, standard flows and material functions, relationships between material functions, generalized Newtonian fluid, the Maxwell model, finite linear viscoelasticity, continuum constitutive equations, effects of material, temperature and pressure on viscoelasticity behaviour, rheometry issues in viscoelastic flow simulations, industrial applications of rheology. A project is required.

Component(s):
Reading

Notes:

- Basic understanding of fluid mechanics is required.

ENGR 6301 Advanced Dynamics (4 credits)

Description:
Dynamics of rigid bodies; generalized coordinates; D'Alembert's principle; Lagrange's equations; energy methods, Hamilton's theory; Euler-Lagrange equations; variational principle of mechanics. Phase space canonical transformation. Language multipliers methods. Hamilton-Jacobe equation. Project on specific topic or applications.

Component(s):
Lecture

ENGR 6311 Vibrations in Machines and Structures (4 credits)

Description:

Vibrations of discrete systems: Single-Degree of Freedom (SDOF) and Multi-Degree of Freedom (MDOF) systems; continuous systems: bars, beams, membranes and plates with various boundary conditions; mode superposition; energy methods; Rayleigh-Ritz Method; condensation techniques; applications to machine components, rotor bearing systems, vehicle and aerospace structures. Project on selected topics is an integral part of the course.

Component(s):

Lecture

Notes:

- This is a cross-listed course.

ENGR 6371 Micromechatronic Systems and Applications (4 credits)

This is a cross-listed course with the undergraduate course MECH 424.

Description:

Introduction to microsystems and devices; mechanical properties of materials used in microsystems; microfabrication and postprocessing techniques; sacrificial and structural layers; lithography, deposition and etching; introduction and design of different types of sensors and actuators; micromotors and other microdevices; mechanical design, finite element modelling; design and fabrication of free-standing structures; microbearings; special techniques: double sided lithography, electrochemical milling, laser machining, LIGA, influence of IC fabrication methods on mechanical properties; application examples in biomedical, industrial and space technology areas; integration, bonding and packaging of MEMS devices. This course includes a project.

Component(s):

Lecture

Notes:

- This course is cross-listed course with the undergraduate course MECH 424. Students who have completed MECH 424 may not take this course for credit.

ENGR 6411 Robotic Manipulators I: Mechanics (4 credits)

Description:

Types of industrial robots and their applications. Mathematical analysis for robot manipulation: homogeneous transformations; definition and solution of kinematic equations governing the position and orientation of the hand. Force analysis and static accuracy; forces and moments of inertia, dynamic equation of equilibrium, differential equations of motion of robotic arms. Robotic actuators. Project on specific topic or applications.

Component(s):
Lecture

Notes:

- This is a cross-listed course.

ENGR 6412 Autonomy for Mobile Robots (4 credits)

Description:
Topics include application of autonomous wheeled robots: autonomous cars, indoor robots, (off-road) unmanned ground vehicles; robot motion models, robot odometry; robot sensor models: beam models of range finders, feature-based measurement models; occupancy grid mapping; the Bayes Filter; the Kalman filter; the particle filter; robot localization: particle filter localization, Kalman filter localization; introduction to simultaneous localization and mapping (SLAM). A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for ELEC 691 (Autonomy for Mobile Robots) may not take this course for credit.
- This course is cross-listed with undergraduate course ELEC 473. Students who have completed ELEC 473 may not take this course for credit.

ENGR 6421 Standards, Regulations and Certification (4 credits)

Description:
Overview of DoT and other international (FAA, etc.) aviation standards, regulations and certification procedures; regulatory areas, namely, pilot training/testing, air traffic procedures, aircraft systems design and airworthiness; development process for new regulations and criteria for certification. Projects on selected topics.

Component(s):
Lecture

ENGR 6441 Materials Engineering for Aerospace (4 credits)

Description:

Fundamentals of materials engineering and processing with special emphasis on aerospace engineering materials and protection against failure; microstructures, phase equilibria for aerospace materials, dislocations, deformation, strain hardening and annealing, recovery, recrystallization; hot and cold metal forming (aircraft fabrication), solidification, castings (process and defects); welding and non-destructive testing, solid solution and dispersion strengthening; ferrous alloys and super alloys, light alloys (AL, MG, TI), ceramic materials, polymers, composite materials (polymer matrix/metal matrix); corrosion, fatigue and creep failure; fracture and wear. Projects on selected topics.

Component(s):
Reading

ENGR 6461 Avionic Navigation Systems (4 credits)

Description:
Introduction: history of air navigation; earth coordinate and mapping systems; international navigation standards; airspace and air traffic control structure; basics of flight instruments and flight controls; fundamental concepts of navigation. Classification of modern avionic navigation systems. Basics of air traffic communication: radio wave propagation; VHF and HF systems. Short range, long range, approach/terminal area avionic navigation systems and radar systems: principles; design; advantages/disadvantages; errors; impact of global positioning system and future trends. Introduction to advanced integrated avionic systems. Projects on selected topics.

Component(s):
Lecture

ENGR 6471 Integration of Avionics Systems (4 credits)

This is a cross-listed course with undergraduate course AERO 483.

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6461.

Description:
Introduction to the basic principles of integration of avionics systems; review of Earth's geometry and Newton's laws; inertial navigation sensors and systems (INS); errors and uncertainty in navigation; global positioning system (GPS); differential and carrier tracking GPS applications; terrestrial radio navigation systems; Kalman filtering; integration of navigation systems using Kalman filtering; emphasis on integration of GPS and INS using Kalman filtering. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course AERO 483. Students who have received credit for AERO 483 may not take this course for credit.

ENGR 6501 Applied Elasticity (4 credits)

Description:
Plane stress and strain; analysis of stress and strain in three dimensions; Airy's stress function; solution of two-dimensional problems by polynomials and Fourier series; effect of small holes in bars and plates; torsion and bending of prismatic bars; Membrane analogy; thermoelasticity; rectangular, circular, ring-shaped flat plates; applications in civil and mechanical engineering. A case study or a project is required.

ENGR 6511 Fundamentals of Finite Element Analysis of Structures (4 credits)

Description:
Topics include matrix formulation of the force and of the displacement methods of analysis; direct stiffness approach, finite element methods for structural analysis; truss, beam, plane strain, plane stress, shell and solid elements; computer applications. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course BCEE 452. Students who have completed BCEE 452 may not take this course for credit.

ENGR 6531 The Finite Element Method in Structural Mechanics (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6511.

Description:
Displacement analysis of structures; finite elements of a continuum; applications of the method to stress analysis of two-and three-dimensional structures; stability problems; vibrations and heat transfer; digital computer applications. A project is required.

Component(s):
Lecture

ENGR 6541 Structural Dynamics (4 credits)

Prerequisite/Corequisite:

The following course must be completed previously: ENGR 6511.

Description:
Dynamic behaviour of structures; lumping of masses; motion of elastic framed structures caused by arbitrary disturbances; analytical and numerical methods of solution; approximate determinations of natural frequencies in elastic systems; dynamic response of framed structures in the inelastic range; continuous systems, introduction to approximate design methods. A case study or a project is required.

Component(s):
Lecture

ENGR 6551 Theory of Elastic and Inelastic Stability (4 credits)

Description:
Analysis of elastic and inelastic stability of columns; frame buckling; beam-columns, strength of plates, shear webs and shells; torsiona; flexural buckling of thin-walled, open sections; snap-through; critical discussion of current design specifications; applications to structures. A case study or a project is required.

ENGR 6561 Theory of Plates and Shells (4 credits)

Description:
Analysis of deformation and stress in plates and flat slabs under transverse loads; various boundary conditions; numerical methods; membrane stresses and displacements in shells under various loading; bending theory of shells; limit analysis of rotationally symmetric plates and shells; applications to shell type structures such as folded plate structures; sandwich plates; shell roofs and pressure vessels. A case study or a project is required.

ENGR 6571 Energy Methods in Structural Mechanics (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6511.

Description:
Principles of virtual work, total potential and complementary energy. Reisner's Principle. Introduction to calculus of variations. Ritz and Galerkin's methods. Applications to frame, plate and shell structures. A project is required.

Component(s):
Lecture

ENGR 6581 Introduction to Structural Dynamics (4 credits)

Description:

Theory of vibrations. Dynamic response of simple structural systems. Effects of blast, wind, traffic and machinery vibrations. Basic concepts in earthquake resistant design. Computer applications. A case study or a project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course BCEE 455. Students who have completed ELEC 455 may not take this course for credit.

ENGR 6601 Principles of Solar Engineering (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: BLDG 6541.

Description:
Magnitude and availability of the solar energy input, including seasonal and diurnal variations of direct beam radiation; spectral distribution of sunlight; scattering and absorption processes; diffuse radiation; influence of cloud cover. Magnitude and time variation of typical loads, including space heating and cooling water heating; dehumidification. Principles of passive and active methods of solar collection, thermal conversion, and energy storage. Analysis of systems and components, including treatment of thermal and turbulent losses; efficiency calculations; electrical analogies; impedance matching and system optimization. Economics of systems. A case study or a project is required.

Component(s):
Lecture

ENGR 6611 Equipment Design for Solar Energy Conversion (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201.

Description:
This course emphasizes the mechanical design of solar heating and cooling systems and consists of the following topics: thermodynamic analysis of radiation, collection and conversion of solar energy, selection and manufacturing of components such as collectors, piping, line insulation, heat exchangers, etc., solar cooling and dehumidification, control of solar energy systems, case studies and project experiences. A case study or a project is required.

ENGR 6661 Solar Energy Materials Science (4 credits)

Description:
The place of organisms and materials in the solar energy cycle; physical, chemical and optical phenomena. Selective absorbers: surfaces and films, emissivity, thermal conversion, role of crystal defects and phase interfaces in metals and semiconductors. Reflector

characteristics and damage modes. Optical and mechanical properties of glass, polymer and composite windows. Photovoltaic: physics and materials. Chemical, thermal and photo stability. Thermal transfer and storage media: gaseous, aqueous, organic; phase change and particulate systems; stability and corrosive effects. A case study or a project is required.

ENGR 6811 Energy Resources: Conventional and Renewable (4 credits)

Description:
Depletion of conventional energy sources. Emission of greenhouse gases from conventional power production systems. Principles of renewable energy systems; cogeneration of electrical and thermal energy, photovoltaic systems, wind power, fuel cells, hybrid systems. Hydrogen and other forms of energy storage for renewable power production. Integrated and small-scale renewable energy systems; independent versus grid-connected systems. A case study or a project is required.

Component(s):
Lecture

ENGR 691 Topics in Engineering I (4 credits)

Description:
See Note in Topic Area E02

Component(s):
Lecture

ENGR 692 Case Study and Report (1 credits)

Description:
Students complete a case study and submit a report on a topic related to the students' discipline, supervised by a professor, and approved by the Graduate Program Director in students' home department. The case study and report must present a current engineering problem or practice related to the students' research interest.

Component(s):
Lecture

Notes:

- This course cannot be taken by students enrolled in the SOEN program.

ENGR 6951 Seminar on Space Studies (4 credits)

Prerequisite/Corequisite:
Permission of Instructor is required.

Description:

Introduction to the science and technology of spaceflight; remote sensing; human factors in space; automation and robotics; space law; space transportation systems; the space station; the Moon-Mars initiative; space utilization; interplanetary travel. Project on selected topic.

ENGR 6971 Project and Report I (4 credits)

Prerequisite/Corequisite:

Enrolment in an MEng program is required. Before registration for a project course, a student must obtain written consent of a faculty member who will act as advisor for the report. A form for this consent is available in the Office of the Dean of Engineering and Computer Science.

Description:

The purpose of the project report is to provide students in the MEng program with an opportunity to carry out independent project work and to present it in an acceptable form. The project may consist of the following: 1. A theoretical study of an engineering problem. 2. A design and/or development project conducted at Concordia. 3. A design and/or project conducted as part of the student's full-time employment, providing the student's employer furnishes written approval for the pursuit and reporting of the project. 4. An ordered and critical exposition of the literature on an appropriate topic in engineering. A four-credit report is due on the last day of classes of the term (fall, winter, summer) in which it is registered. Students are expected to have a preliminary version of their report approved by their advisor before its final submission. On or before the submission deadline, students must submit three copies of the report to their advisors, who will grade the report. One copy of the report will be returned to the students, one retained by the advisors, and one by the department. The report, including an abstract, must be suitably documented and illustrated, should be at least 5000 words in length, must be typewritten on one side of 21.5 cm by 28 cm white paper of quality, and must be enclosed in binding. Students are referred to "Form and Style: Thesis, Report, Term Papers, fourth edition by Campbell and Ballou," published by Houghton Migglin. Project: 8 hours per week.

ENGR 6981 Project and Report II (4 credits)

Prerequisite/Corequisite:

Enrolment in the MEng Program is required. Permission of the Department; and approval by the faculty member who has accepted to supervise the work is required prior to enrolling.

Description:

Students may register for this project course if they wish to carry out a more extended project, or if they wish to complete further projects. The report will be evaluated by the advisor and at least one other Engineering and Computer Science member of the Gina Cody School. Project: 8 hours per week.

Notes:

- Students working on a multi-course project must register for the corresponding project courses in successive terms.

ENGR 6991 Project and Report III (5 credits)

Prerequisite/Corequisite:

Enrolment in the MEng Program is required. Permission of the Department; and approval by the faculty member who has accepted to supervise the work is required.

Description:
Students may register for this project course if they wish to carry out a more extended project, or if they wish to complete further projects. The project report is due on the last day of classes of the last term in which students are registered. Three copies of the report must be submitted to the advisor on or before this deadline, and students are also required to make an oral presentation to the evaluators, and other members of the community. The report will be evaluated by the advisor and at least one other Engineering and Computer Science member of the Gina Cody School. A project is required.

Component(s):
Lecture

Notes:

- Students working on a multi-course project must register for the corresponding project courses in successive terms.

ENGR 7011 Graduate Seminar in Mechanical and Industrial Engineering (1 credits)

Component(s):
Seminar 2 hours per week.

ENGR 7121 Analysis and Design of Linear Multivariable Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6131.

Description:
Representation of linear multivariable systems. Controllability, observability and canonical forms; poles and zeroes; multivariable system inverses; the linear quadratic regulator problem; the robust servomechanism problem; the minimal design problem; frequency-domain design techniques. Project: 2 hours per week.

Component(s):
Lecture

ENGR 7131 Adaptive Control (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ELEC 6061; ENGR 6131.

Description:
Real-time parameter estimation; least-squares and regression models; recursive estimators; model reference adaptive systems (MRAS); MRAS based on gradient approach and stability theory; self-tuning regulators (STR); adaptive prediction and control; stability

and convergence results, robustness issues; auto-tuning and gain scheduling; alternatives to adaptive control; practical aspects; implementation and applications. Project: 2 hours per week.

Component(s):
Lecture

ENGR 7181 Digital Control of Dynamic Systems (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ELEC 6061; ENGR 6131.

Description:
Review of discrete-time and sampled-data systems; discrete input-output and state-space equivalents; controllability and observability of sampled-data systems; controller design using transform techniques, design using state-space methods; generalized sample-data hold functions; optimal control; quantization effects; multi-rate sampling; robust control; discrete-time non-linear systems; discrete-time multivariable systems. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for ENGR 6181 may not take this course for credit.

ENGR 7201 Micro-Gravity Fluid Dynamics (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201.

Description:
Forces and accelerations in space environment; zero-gravity simulation, free falling capsules, flights in Keplerian trajectories, sounding rockets, and the space station; surface tension; main non-dimensional parameters; Laplace-Young equation; contact angle; Dupre's equation; Neumann's triangle; minimization principle associated with Laplace's equation; equilibrium shapes of a liquid, small oscillations of ideal and viscous fluids, liquid handling problems at low gravity, liquid positioning and control, vortexing capillary; numerical simulations of liquid dynamics in microgravity environment. Projects on selected topics.

ENGR 7331 Random Vibrations (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6311.

Description:
Mathematical descriptions of stochastic processes; spectral density and correlation functions; Gaussian and non-Gaussian random

processes; Markov processes and Fokker/Planck equation; response of linear and nonlinear oscillatory systems to random excitation; non-stationary and narrow-band random processes. Project on selected research topic or applications.

Component(s):
Lecture; Reading

ENGR 7401 Robotic Manipulators II: Control (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6411.

Description:
Control of a single link manipulator; position, velocity and acceleration errors; control of a multiple link manipulator sensor: vision, proximity, touch, slip, force, compliance and force controlled robots. Computer control of robots, command languages. Introduction to intelligent robots. Project on selected topics of current interest.

Component(s):
Lecture

ENGR 7461 Avionic Systems Design (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6461.

Description:
Definitions, purpose, history and evolution of avionic systems; cockpit displays configurations, classifications, and design considerations; ARINC communication bus system standards; air data computer system; navigation systems; automatic flight control systems; monitoring/warning/alert systems; flight management systems; system integration; advanced concepts and future trends. Projects on selected topics.

Component(s):
Lecture

ENGR 7501 Advanced Finite Element Method in Structural Mechanics (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6511 or equivalent.

Description:
Topics include finite elements of a continuum; applications of the method to stress analysis of two- and three-dimensional structures; stability problems; vibrations and heat transfer; non-linear methods; computer applications. A project is required.

Component(s):
Lecture

Notes:

- Students who have taken ENGR 6531 may not take this course for credit.

ENGR 791 Topics in Engineering II (4 credits)

Description:
Subject matter will vary from term to term and from year to year.

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

ENGR 7961 Industrial Stage and Training (6 credits)

Prerequisite/Corequisite:
Students must have completed at least twelve credits in the composite option and at least twenty-one credits in the aerospace program. If prerequisites are not satisfied, permission of the program director is required.

Description:
This is an integral component of the aerospace program and the composites option in the Mechanical Engineering program that is to be completed under the supervision of an experienced engineer in the facilities of a participating company (Canadian work permit is required). The topic is to be decided by a mutual agreement between the student, the participating company and the program director.

Component(s):
Practicum/Internship/Work Term

Notes:

- The course is graded on the basis of the student's performance during the work period, which includes a technical report. There may be some restrictions placed on students chosen for the industry sponsored "stage". For those students who are unable to obtain an industrial stage, it is possible to take this course for a project carried out at the university. Such students must obtain the approval of the program director.

ENGR 8901 Master of Applied Science Research and Thesis (29 credits)

Description:
The thesis represents the results of the student's independent work after admission to the program. The student submits a thesis based upon this work and defends it in an oral examination. The thesis is evaluated by an Examining Committee which consists of the student's supervisor(s), and two (2) examiners, one of whom may be external to the student's department. The Committee must be approved by the Graduate Program Director of the student's department.

Component(s):
Thesis Research

ENGR 8911 Doctoral Research and Thesis (70 credits)

Description:
Students are required to plan and carry out a suitable research, development, or design project, which leads to an advance in knowledge. The thesis involves a literature review of the field of research, and reports on the planning and execution of innovative and original research conducted under supervision of a faculty member. The thesis is the object of an oral defense, under the guidelines of the School of Graduate Studies. Theses will be examined by a committee consisting of the student's supervisory committee, an external examiner, and other examiners as approved by the GCS Dean of Graduate Studies.

Component(s):
Thesis Research

Information Systems Engineering Courses

INSE 6100 Advanced Java Platforms (4 credits)

Prerequisite/Corequisite:
Permission of the CIISE is required.

Description:
This course emphasizes the architecture and the inner workings of the Java virtual machine; 3 distributions of the Java Platform: the micro-addition, the standard addition and the enterprise addition; the JCP process and the Java standards purposed as API extensions; semantic foundations of Java: static semantics and dynamic semantics. Introduction of technologies that are used to accelerate (performance analysis, hardware accelerators, ahead-of-time, just-in-time, selected dynamic compilation and component-based acceleration) and secure (virtual machines, such as vulnerability analysis, Java security models, byte-code verification, access controllers, security managers, policy files, and certified compilation) Java. Semantic correctness of acceleration and security techniques will also be addressed. A project is required.

Component(s):
Lecture

INSE 6110 Foundations of Cryptography (4 credits)

Description:
Introduction to cryptography and cryptanalysis, classical ciphers, number-theoretic reference problems, the integer factorization problem, the RSA problem, the quadratic residuosity problem, computing square roots in Zn, the discrete logarithmic problem, the diffie-hellman problem, pseudorandom bits and sequences, stream ciphers: feedback shift registers, LFSRs, RC4. Block Ciphers: SPN and Fiestel structures, DES, AES, linear cryptanalysis, differential cryptanalysis, side channel attacks, ciphertext indistinguishability, attack analysis, IND-CPA, IND-CCA, IND-CCA2, public key encryption: RSA, Rabin, ElGamal, elliptic curves cryptography, hash functions: Un-keyed hash functions, MACs, Attacks, Digital signatures: RSA, Fiat-Shamir, DSA, public key infrastructure, key management, efficient implementation of ciphers, zero-knowledge proof. A project is required.

Component(s):
Lecture

INSE 6120 Crypto-Protocol and Network Security (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INSE 6110 or equivalent.

Description:
Cryptographic protocols, authentication protocols, key distributions protocols, e-commerce protocols, fair-exchange and contract-signing protocols, security protocol properties: authentication, secrecy, integrity, availability, non-repudiation, atomicity, certified delivery, crypto-protocol attacks, design principles for security protocols, automatic analysis, public key infrastructure, models and architectures for network security, authentication using Kerberos and X.509, email security (PGP, S/MIME), IP security, SSL/TLS

protocols, virtual private networks, firewalls intrusion detection, host-based IDS, network based IDS, misuse detection methods, anomaly detection methods, intrusion detection in distributed systems, intrusion detection in wireless ad hoc networks botnet detection, analysis and mitigation, darknet traffic analysis, prediction and forecast of network threats, network security monitoring. A project is required.

Component(s):
Lecture

INSE 6130 Operating Systems Security (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INSE 6110 or equivalent.

Description:
System security, Windows security, Linux security, Unix security, access control matrix, HRU result, OS security mechanisms, security administration, access control list, capability list, role-based access control, security policy, mandatory and discretionary access control, multi-level security, BLP policy, Biba model, conflict of interest, Chinese Wall policy, secure booting, authentication, password security, challenge response, auditing and logging, system kernel security, threat analysis, security attacks, security hardened operating, host-based intrusion detection, securing network services, firewalls and border security, registry security, embedded and real-time OS security, information flow control. A project is required.

Component(s):
Lecture

INSE 6140 Malware Defenses and Application Security (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INSE 6110 or equivalent.

Description:
Malicious code, taxonomy, viruses, worms, trojan horses, logical and temporal bombs, infection process, security properties of applications, safety, high level security, detection approaches, ad hoc techniques: scanning, anti-virus technology, obfuscation, dynamic analysis for security: passive and active monitoring, in-line and reference monitors, sandboxing, static analysis for security: data and control flow analysis for security, type-based analysis for security, anti-reverse-engineering protection, software fingerprinting, self-certified code: certifying compilers, proof carrying code, efficient code certification, typed assembly languages, certificate generation, certificate verification and validation, C and C++ security, java security, byte-code verification, access controllers, security managers, permission files, security APIs, critical APIs, protection domains, security profiles, mobile code security. A project is required.

Component(s):
Lecture

INSE 6150 Security Evaluation Methodologies (4 credits)

Description:
Security evaluation of information systems, security evaluation of software, security evaluation of products. Security code inspection, security testing, security standards, preparation of a security evaluation: impact scale, likelihood scale, severity scale. Vulnerability analysis, risk analysis, security plan elaboration. ITSEC, MARION, and MEHARI methods, OCTAVE, common criteria, target of evaluation, protection profile, security functional requirement, security factors, errors, accidents, assurance requirements, assurance levels, evaluation process, compliance with the protection profile, IT security ethics, privacy, digital copyright, licensing IT security products, computer fraud and abuse, incident handling, business records, security forensics, security evaluation case studies. Information security governance: risk management, business strategy, standards, COBIT. Situation awareness. A project is required.

Component(s):
Lecture

INSE 6160 Database Security and Privacy (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INSE 6110 or equivalent.

Description:
Access control in relational databases; grant/revoke model; security by views; query modification; Oracle VPD; auditing in databases; information warfare in databases; multi-level database security; polyinstantiation and covert channel; statistical database security; inference control; security by auditing; microdata security; random perturbation; outsourced database security, encrypted databases; SQL injection attack; anomaly detection in databases; data privacy, P3P; Hippocratic databases; perfect secrecy-based privacy; k-anonymity model; l-diversity; data utility measure, data release with public algorithms, multi-party privacy preserving computation; privacy in OLAP. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for INSE 691 (Database Security and Privacy) may not take this course for credit.

INSE 6170 Network Security Architecture and Management (4 credits)

Description:
Security architecture and management, risk and threats, security attributes and properties, security design principles, security standards, security defence toolkit, and security building blocks, corporate VoIP, residential IPTV, IMS, cloud services, security functions and their implementation, operational considerations of deployment and management of security, configuration, vulnerability management and updates, incident management, emerging challenges and innovative solutions. A project is required.

Component(s):
Lecture

INSE 6180 Security and Privacy Implications of Data Mining (4 credits)

Description:
Introduction to data mining and its applications; privacy legislations security and privacy threats caused by current data mining techniques; risks and challenges in emerging data mining applications; attacks and prevention methods: web privacy attacks, data mining-based intrusion detection; privacy-preserving data mining; privacy-preserving data publishing. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for INSE 691 (Security Implications of Data Mining) may not take this course for credit.

INSE 6190 Wireless Network Security (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INSE 6110 or equivalent.

Description:
Introduction to wireless network security; security issues in cellular networks; authentication/key management in wireless LAN; secure handover; security in mobile IP; security issues in mobile ad-hoc networks: trust establishment, secure routing, anonymity; anonymous sensory data collection; privacy for smartphone applications. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for INSE 691 (Wireless Security) may not take this course for credit.

INSE 6210 Total Quality Methodologies in Engineering (4 credits)

Description:
Methodologies for quality engineering: six sigma, ACE (Achieving Competitive Excellence), Lean engineering, ISO9000 series; comparative study, quality clinic process charts, relentless root cause analysis, mistake proofing, market feedback analysis, process improvement and waste elimination, visual control, standard work and process management, process certification, setup reduction, total productive maintenance, DMAIC and DMADV processes, define phase, project charter, project scoping and planning, measure phase, critical to quality requirements, quality functional deployment, analyze phase, functional and process requirements, design requirements, design concepts, high-level design capability elaboration and evaluation, design phase, detailed design capability elaboration and evaluation, failure mode and effects analysis, control and verification plans, verify phase, pilot-scale processes, pilot testing and evaluation, implementation planning, full-scale processes, start-up and testing, performance evaluation, turnover to operations and maintenance, transition to process management, project closure. A project is required.

Component(s):
Lecture

INSE 6220 Advanced Statistical Approaches to Quality (4 credits)

Description:
Introduction to quality control and total quality, statistical concepts and techniques in quality control, graphical methods for data presentation and quality improvement, statistical basis for control charts, pattern analysis in control charts, control charts for variables, control charts for individual measurements, control charts for attributes, process capability analysis, CUSUM charts and EWMA charts, acceptance sampling by attributes, acceptance plans by variables, reliability models, reliability and life testing plans, multivariate quality control, multivariate methods, aspects of multivariate analysis, multivariate normal distribution, multivariate tests of hypotheses, multivariate analysis of variance, principal components analysis, factor analysis, discrimination and classification, multivariate quality control, multivariate linear regression, design of experiments (DOE), Taguchi method, completely randomized design (CRD), randomized complete block design (RCBD), incomplete block designs, latin square designs, graeco-latin square designs, factorial designs, fractional factorial designs, split plot designs, and nested designs (compared to cross-over designs), quality in the service sector, service industries and their characteristics, model for service quality and applications. A project is required.

Component(s):
Lecture

INSE 6230 Total Quality Project Management (4 credits)

Description:
Role of a project manager, learning and applications, project management processes, project management in quality initiatives, intellectual property protection, customer project management and critical-to-quality requirements, project planning and execution, team formation, goals, roles, procedures and interpersonal relationship, types of teams, creating a project plan, project tracking, project compliance requirements, sourcing and supplier qualification, government contract data rights, government property, risk management process, action planning, project communication, customer, team and stakeholder communications, communication planning and strategy, web-based collaboration, project management software tools. A project is required.

Component(s):
Lecture

INSE 6240 Executive Communication (1 credits)

Description:
Communication plan elaboration, preparing presentations, developing a sound strategy, organizing for effectiveness, capturing the audience, the impromptu speech, introducing a speaker, reading a paper, leading a conference, interpersonal communication, use of voice, active listening, assertive speaking, giving and receiving feedback, assertive techniques, work styles, conflict and dispute resolution, negotiation, managing difficult situations, writing skills, interpersonal communications, business letters, formal reports, communication technology. A project is required.

Component(s):
Lecture

INSE 6250 Quality Methodologies for Software (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: INSE 6210 or equivalent; COMP 5541 or equivalent.

Description:
Quality methodologies for software, calculating sigma values, graphical analysis, quality processes for software, MAIC, DMADV, define overview, project context, initial analysis and design, lifecycle and multi-generational planning, project management, risk analysis, measure overview, customer needs, quality functional deployment for software, software metrics and requirements, scorecards, meta-models, specification languages (SDL, B, Z, etc.), software modelling (UML, Core, IDEF, etc.), graphical languages, design and verify overview, failure mode and effect analysis for software, defensive programming, smart and simple design, peer reviews, performance analysis, statistical tools, software testing, software verification. A project is required.

Component(s):
Lecture

INSE 6260 Software Quality Assurance (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: INSE 6210 or equivalent; COMP 5541 or equivalent.

Description:
Quality assurance, quality factors, components of a software quality assurance system, contract review, software development and quality plans, activities and alternatives, integration of quality activities in a project lifecycle, reviews, software inspection, software verification, testing processes, static analysis, control-flow analysis, data-flow analysis, control-flow testing, loop testing, data-flow testing, transaction-flow testing, domain testing, type-based analysis, dynamic analysis, usage models, operational profiles, result and defect analysis, reliability, performance analysis, maintenance and reverse engineering, case tools and software quality assurance. A project is required.

Component(s):
Lecture

INSE 6270 Quality-Based Systems Engineering (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INSE 6210 or equivalent.

Description:
System engineering, quality-based system development process, acquisition and specification of system requirements, system design and prototyping, system implementation and testing, modelling languages for system engineering (SysML, IDEF, CORE, etc.), exchange mechanisms for system engineering data (AP233, XMI, etc.) gathering, specification, formulation, and refinement of system requirements, customer requirements, market requirements, technical requirements, implementation requirements, eco-requirements (scenario-based requirements gathering and refinement, affinity diagram, analytic hierarchy analysis), conflict resolution (TRIZ), management of system requirements in the design process (axiomatic design, decision tree, morphology matrix, systematic design), management of system requirements in the implementation process (six-sigma, ACE, Lean, ISO 9000, ERP, SAP, CMMS), case studies. A project is required.

Component(s):
Lecture

INSE 6280 Quality Assurance for Systems Engineering (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: INSE 6210 or equivalent.

Description:
Introduction to quality assurance and quality factors in systems engineering, components of a quality assurance system, principles of verification, validation and accreditation of systems, Vvsystem modelling languages, model semantics, techniques for V principles of system simulation (types of problems, simulation systems and their classification, principles of simulation system design and implementation), verification and validation techniques for simulation models (problem entity, conceptual model, and computerized model), development of simulation platforms, standards for system simulation, high level architecture (HLA). A project is required.

Component(s):
Lecture

INSE 6290 Quality in Supply Chain Design (4 credits)

Description:
Evolution of supply chain, lingo, notation, master planning, role in business, performance analysis, activity profiling, strategic quality planning for supply chain, inventory planning and management (IP&M), perfect order percentage, inventory turns, fill rates and substitutions, purchase and customer order cycle times, customer service and order processing (CS&OP), network planning, supply contracts, distribution strategies, coordinated product and supply chain design, quality and innovation in product design, design for maintainability, designing for reliability, environmental considerations in supply chain design, designing quality services, make, buy, and sourcing analysis, supplier partnerships, global sourcing active assembly, supply chain management systems, efficient transportation, efficient warehousing, impact of e-commerce on supply chains, information technology and decision support systems, e-business strategies, e-business transactions, e-commerce platforms for supply chain. A project is required.

Component(s):
Lecture

INSE 6300 Quality Assurance in Supply Chain Management (4 credits)

Description:

Supply chain management, definition, models, evolution and evaluation, quality attributes, evaluation criteria, key supply chain management issues, supply chain cost reduction opportunities, sales and operating planning hierarchy, gathering data required for sales and operation planning, inventory management techniques, effective supply chain management, supply and demand synchronization, aligning customer demands to order fulfillment, management of supply chain constraints, supply chain performance measurements, supply chain Information, communication, security, information flows, security measures, global supply chain quality and international quality standards, customer driven quality, managing supplier quality in the supply chain, the tools of quality; statistically based quality improvement for variables and attributes; managing quality improvement teams and projects. A project is required.

Component(s):

Lecture

INSE 6310 Systems Engineering Maintenance Management (4 credits)

Description:

Maintenance concepts in engineering systems; component replacement; optimal component preventive replacement intervals; age-based replacement models for components; spare parts provision; optimal inspection decisions; condition based maintenance systems; proportional hazards model; capital equipment replacement; maintenance resource planning; reliability centered maintenance; equipment degradation analysis; degradation prediction; maintenance information system; maintenance software. A project is required.

Component(s):

Lecture

Notes:

- Students who have received credit for INSE 691 (Systems Engineering Maintenance Management) may not take this course for credit.

INSE 6311 Sustainable Infrastructure Planning and Management Systems (4 credits)

Description:

This multi-disciplinary course will provide the basic knowledge for developing advanced information systems that can be used to systematically plan and manage infrastructure (e.g. roads and bridges) throughout its lifecycle, including environmental impact assessment. The course will cover the following topics: Definition and history of Infrastructure, Types and functions of Infrastructure, Infrastructure Planning, Performance Modelling, Failure Analysis and Reliability Issues, Infrastructure Inspection and Monitoring, Maintenance and Rehabilitation Strategies, Environmental Management and Sustainability Issues, and Integrated Infrastructure Management Systems. Projects.

Component(s):

Lecture

INSE 6320 Risk Analysis for Information and Systems Engineering (4 credits)

Description:

Introduction to risk analysis theory. Risk assessment methodologies, risk assessment techniques and standards for information systems, review of probability theory, hazard identification, fault tree analysis, event tree analysis, sensitivity analysis, qualitative risk analysis, quantitative risk analysis, case studies on information systems, value analysis and integrated risk management. A project is required.

Component(s):

Lecture

Notes:

- Students who have received credit for INSE 691 (Risk Analysis for Information and Systems Engineering) may not take this course for credit.

INSE 6330 Discrete Choice Experiments in Product and Service Design (4 credits)

Description:

This course shows how to use discrete choice statistics and discrete choice experiments to evaluate consumer response and estimate market share for products and services, both existing and hypothetical. Strong emphasis is placed on hands-on training and students learn how to develop, administer and analyze data collected from their own choosing. Topics covered in the course include stated and revealed preference data and sources, survey design, sampling, experimental design, continuous dependent variable statistical inference, discrete choice statistical models, multinomial logit and mixed multinomial logit, and simulation with discrete choice models. A project is required.

Component(s):

Lecture; In Person (P)

Notes:

- English

INSE 6350 Computational Geoprocessing in Systems Engineering (4 credits)

Description:

This course teaches the principles of computational geoprocessing in the context of systems engineering. Topics covered in the course include the key concepts of geographic information systems (GIS) and how they are used to understand, process, analyze and represent geographic and network data, as well as how to perform GIS functionality in a data science workflow. Strong emphasis is placed on the automation and optimization of GIS processing, analysis and representation, facilitated through programming with generalized open-source libraries. A project is required.

Component(s):

Lecture; In Person (P)

Notes:

- English

INSE 6400 Principles of Systems Engineering (4 credits)

Description:

Origins of systems engineering; modern engineering systems; structure of complex systems; systems life cycle; systems engineering management; system decomposition and architecture; systems with uncertain and imperfect information; structural and dynamics modelling; integration and evaluation: production, operation and support; systems engineering decision tools; special topics: systems of systems, sustainability, mass collaboration. A project is required.

Component(s):

Lecture

Notes:

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INSE 6411 Product Design Theory and Methodology (4 credits)

Description:

This course introduces main design theories and methodologies for the conceptual and configuration design of mechanical/manufacturing systems. It includes the following topics: general design process; introduction to design theory and methodologies; user requirements analysis; structure of design problem; design concept and product configuration generation methods; evaluation of design concepts and product configuration; sources and resolution strategies of design conflicts; computer-assistance of all these tasks; and case studies of product design. A project is required.

Component(s):

Lecture

INSE 6421 Systems Integration and Testing (4 credits)

Description:

Introduction to integration and testing of complex systems; fundamentals of project planning; process analysis; workflow modelling; six sigma tools and methodologies for systems integration; formulation of systems operational assessment and concept; systems architecture, functions and capabilities composition and packaging into high-level system architecture; modelling and analysis methods for representing system functionality and capability; interface description and management; testability and interoperability testing; management issues pertaining to integrated product teams, vendors, suppliers, and subcontractors. A project is required.

Component(s):

Lecture

INSE 6431 Ad Hoc Wireless Networks: Architectures and Protocols (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ELEC 6851; COMP 6461 or equivalent.

Description:
Design, provisioning and management of ad hoc wireless networks. Concepts, architectures and protocols related to the efficient design and high performance of ad hoc wireless networks. Medium access control schemes; mathematical analysis. Analysis of access protocols in multihop networks; derive the system capacity. Study of various control knobs for improving the network capacity; power control, physical carrier sense turning, rate control, interference mitigation, and channel diversity. Study emerging issues such as supporting quality of service in wireless networks; security issues in wireless networks, broadband wireless access; wireless mesh networks; their integration with wired networks; vehicular ad hoc networks and related protocols. A project is required.

Component(s):
Lecture

INSE 6441 Applied Game Theory and Mechanism Design (4 credits)

Description:
Fundamentals of game theory; equilibrium concepts; strategic games; extensive games; Bayesian games; game strategies in network security; game theory for trust and reputation; fundamentals of mechanism design; optimal mechanisms; efficient mechanisms; incentive compatibility; incentives and information security; revelation principle and trust; analysis tools; applications: security protocols, supply chain, trust and reputation, social networks. A project is required.

Component(s):
Lecture

INSE 6510 Video Game Technology and Development (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: COMP 5511 or equivalent.

Description:
This course is part development and part technology, and will cover the process of commercial video game development, and software design patterns used for game design. The course provides an in-depth understanding of how the game design process works. Students work with a game engine software framework to design and implement several kinds of games. Video game history. Basic Building blocks of a game. Elements of game design. Game Maker: objects, sprites, events. Space Shooter. Developing games with Games Factory. Real Time Strategy game development. A project is required.

Component(s):
Lecture

INSE 6530 3D Graphics and Computer Animation for Game Design (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: COMP 6761 or equivalent.

Description:
Application of 3D graphics and animation topics to non real-time rendered media. Current research topics in computer animation such as dynamic simulation of flexible and rigid objects, automatically-generated control systems, and evolution of behaviours. History of Animation. Animation Basics. Keyframe Animation. Path Animation. Non-Linear Animation. Modelling Concerns for Animation. Rigging for Forward and Inverse Kinematics. Morphing. Expressions. Particle Systems. Dynamics. A project is required.

Component(s):
Lecture

INSE 6610 Cybercrime Investigations (4 credits)

Description:
Introduction to cybercrimes: unauthorized access, mischief to data, possession of hacking tools, possession of child pornography; Legal aspects: Canadian judicial system, computer crime laws, charter of rights, common law, mutual legal assistance treaty, search warrants, production and assistance orders, international laws, upcoming legal changes; Investigation process: search planning, acquisition methods, environment recognition, evidence identification; Reporting process: investigation and analysis reports, notes taking; authority of seizure; forensic interviews; Computer crime trials: witness preparation, court sentencing, rebuttal witness, cross-examination, testimony, credibility attacks; in-depth case studies. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for INSE 691 (Cybercrime Investigations) may not take this course for credit.

INSE 6615 Blockchain Technology (4 credits)

Description:
The course covers blockchain technology with an emphasis on its application to finance. Starting with the Bitcoin cryptocurrency, it covers the requisite cryptographic primitives (hash functions, digital signatures, commitments, accumulators, Merkle trees, proof of work) and explains the Bitcoin protocol (including transactions, blocks, network and software). It then focuses on programmable currency and contracts, explaining Bitcoin's scripting feature and the Ethereum blockchain. It covers the Solidity programming language, highlighting specific features that were added for the blockchain context (and don't exist in other object-oriented programming languages). Finally, the course covers blockchain use-cases in including financial technology and government use. Assignments will include deploying an actual contract to Ethereum's testnet. A project is required.

Component(s):

Lecture

INSE 6620 Cloud Computing Security and Privacy (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INSE 6110 or equivalent.

Description:
Cloud computing concepts, SOA and cloud, virtualization and cloud, cloud service delivery models, cloud storage models, cloud deployment scenarios, public/ private/ hybrid/ community cloud, cloud computing architectures, SaaS, PaaS, IaaS, agility, scalability and elasticity of cloud, cloud security, cloud privacy, homomorphic encryption, searching encrypted cloud data, secure data outsourcing, secure computation outsourcing, proof of data possession / retrievability, virtual machine security, trusted computing in clouds, cloud-centric regulatory compliance, business and security risk models, cloud user security, identity management in cloud, SAML, applications of secure cloud computing.

Component(s):
Lecture

INSE 6630 Recent Developments in Information Systems Security (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: any two of INSE 6110, INSE 6120, INSE 6130, or INSE 6140.

Description:
Security and privacy legislations. New security threats and solution on personal computers, enterprise computers, personal information, confidential information, identity fraud, financial fraud, and social networking. Recent developments in trusted computing for critical cyber infrastructure, privacy-aware information sharing, cybercrime, and cyber forensics techniques. Cyber espionage, cyber terrorism, and cyber war. A project is required.

Component(s):
Lecture

INSE 6640 Smart Grids and Control System Security (4 credits)

Description:
Overview of electric grid operation, evolution to the smart grid, smart grid components, dynamic pricing, promotion of “green” resources, governmental regulation, network standards, consumer privacy, risks to the smart grid, physical security and protections against tampering for smart grid environments, device level security, authorization and access control, consumer privacy protection, cryptographic mechanisms for smart grid environments, secure key management, communication security in smart grid, privacy of user data for Advanced Metering Infrastructure (AMI), security standards for smart grid, supervisory control and data acquisition (SCADA), SCADA architecture, SCADA Security, SCADA monitoring, SCADA systems for smart grids, distributed control systems (DCS), communication infrastructure. A project is required.

Component(s):

Lecture

INSE 6650 Trusted Computing (4 credits)

Description:

Hardware and software root of trust; establishing and attesting trust of software systems; Trusted Platform Module (TPM); CPU support for trusted computing, including existing technologies such as Intel Trusted Execution Technology (TXT), AMD Secure Virtual Machine (SVM), ARM TrustZone; secure crypto processors such as Hardware Security Modules (HSMs); bank HSM APIs and their weaknesses; attestation protocols; OS support for trusted computing; security tokens (e.g., second factor of authentication, smartcards, transaction verification code); trusted user interface; use cases: digital rights management (DRM), authentication, protected execution of security sensitive code, trusted kiosk computing, full disk encryption, malware exploiting trusted computing infrastructure; hardware and software attacks; privacy issues. A project is required.

Component(s):

Lecture

INSE 6660 Secure Programming (4 credits)

Description:

Topics include fundamentals of secure programming; string-related vulnerabilities and defence. Pointer-related vulnerabilities and defence; memory management-related vulnerabilities and defence. Integer-related security issues; formatted output-related security issues; concurrency-related security issues; security vulnerabilities and linking; security in sockets programming; security vulnerabilities and signals; file I/O security; best practices and coding standards; design principles for secure programming; model-based secure programming; static analysis for secure programming. A project is required.

Component(s):

Lecture

INSE 6670 Embedded Systems Security (4 credits)

Description:

Topics of this course include embedded and real-time embedded systems; embedded systems security and trust; monitoring of embedded systems; security and protection objectives for hardware; adversaries, attacks; trusted integrated circuits (TIC); hardware assisted security and trust; process reliability and security; secure program execution on embedded processors; networks on chip; secure memory access; hardware trusted platforms; secure processors; efficient security processing; energy efficient security; cryptographic processors; physical one-way functions (POWF); PUF-based security; FSM model of computation; hiding information in FSM/IC piracy protection by active hardware metering; remote enabling and disabling of ICs; watermarking for intellectual property protection (IPP); physical and invasive attacks, side-channel attacks; zero knowledge proofs; FPGA security; FPGA fingerprinting and access; hardware trojan horses. Applications (automotive domain, internet of things, cyber-physical systems, SCADA, sensor networks). A project is required.

Component(s):

Lecture

INSE 6680 Systems Physical Security (4 credits)

Description:

Topics of this course include identifying potential security threats and vulnerabilities, threat and risk assessment; security equipment and systems (access control and biometrics technology, surveillance systems, network infrastructure supporting security technology); physical security of information systems; maximizing the value of security systems; securing transported materials; emergency management and risk mitigation; critical infrastructure protection. Overview of the Canadian Operational Standard on Physical Security, Policy on Government Security and U.S. National Response Framework. A project is required.

Component(s):

Lecture

INSE 6690 Fundamentals of Federated Learning (4 credits)

Description:

Federated learning is a privacy-preserving machine learning paradigm, which enables the collaborative training of machine learning models from decentralized datasets in users' devices such as mobile phones, wearable devices and smart sensors without uploading their privacy-sensitive data to a central server or service provider. This course introduces students to the fundamentals of federated learning with case studies in healthcare, smart cities, Internet of Things, and blockchain technology. Topics include centralized versus decentralized learning systems, local model training and global model aggregation, federated averaging algorithms, federated learning protocols, differential privacy and secure multi-party-computation, homomorphic encryption, privacy-preserving protocols, adaptive aggregation and incentive mechanisms, data and model poisoning attacks. A project is required.

Component(s):

Lecture

INSE 6710 Fundamentals and Applications of Cyber-Physical Systems (4 credits)

Description:

This course provides a comprehensive overview of cyber-physical systems (CPS), including characterization, evolution, basics and fundamental concepts. The application domains of CPS include manufacturing, healthcare, smart grid, transportation and smart cities. The course also covers modelling, control issues in CPS, machine-type communications, research trends for supporting CPS applications, data reliability challenge of CPS, localization in CPS, application of game theory to CPS, and ethical issues in CPS. A project is required.

Component(s):

Lecture

INSE 691 Topics in Information Systems Engineering (4 credits)

Description:

Subject matter will vary from term to term and from year to year.

Component(s):
Lecture

Notes:

- Students may reregister for these courses, providing that the course content has changed. Changes in content will be indicated by the title of the topic.

INSE 6961 Graduate Seminar in Information and Systems Engineering (1 credits)

Description:
Students must attend a set of seminars identified by the Concordia Institute for Information Systems Engineering and submit a comprehensive report on the topics presented in three of the seminars.

Component(s):
Seminar

Notes:

- This course is graded on a pass/fail basis.

INSE 7100 Design and Analysis of Security Protocols (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6311 or equivalent.

Description:
The primary objective of this course is to present the methods used in the design and analysis of modern security protocols, introduction to existing cryptographic protocols. The most important security proprieties (such as authentication, secrecy, integrity, availability, atomicity, certified delivery and other properties), flaw taxonomy (such as freshness attacks, type attacks, parallel session attacks, implementation dependent attacks, binding attacks, encapsulation attacks and other forms of attack). Cryptographic protocol specification (general-purpose formal languages, logical languages, operational languages and security calculi). Cryptographic protocol analysis (security logics analysis, model-based and algebraic analysis, process algebra analysis, type based analysis). Limitations of formal methods and ad-hoc techniques, project will be offered in analyzing a number of published cryptographic protocols. The focus of this course will be on the design and the analysis of security protocols. A project is required.

Component(s):
Lecture

INSE 7110 Value Added Service Engineering in Next Generation Networks (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6861 or equivalent.

Description:
Telecommunications service engineering, or more simply service engineering, is the discipline that addresses the technologies and engineering process for the specification, implementation, testing, deployment, usage of value added services in telecommunication networks, value added services, or more simply services, can be defined as anything that goes beyond two party voice calls. They are either call related (e.g. call diversion, multiparty gaming, conducted conferences) or non-call related (e.g. customized stock quotes, web surfing from a cellular phone). Some services may combine call related and non-call related features (e.g. call centres). This course will cover the basics of service engineering (such as basic concepts, value added services, service life cycle, service engineering, intelligent networks, WAP/Imode/TINE-C). The basics of next generation networks (such as session initiation protocol (SIP), H.323, Megaco, H.248, 3GPP/3GPP2 architecture, softswitch). Signaling protocol-specific approaches (such as H.232 supplementary services, SIP CGI, SIP servlet API). Signaling protocol neutral approaches (such as CPL, JAIN JCC/JCAT, PARLAY; web services). Approaches at the research stage (such as context awareness; mobile code-based approaches). A project is required.

Component(s):
Lecture

INSE 7120 Advanced Network Management (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: COEN 6861 or equivalent.

Description:
Network management – basics (history and basic definitions, management frameworks, functional areas). The simple network management protocol framework (history, protocol architecture, functional architecture, information architecture, RMON, management by delegation, distributed management and JASMIN NIB, case studies). OSI systems management, TNM and other frameworks (OSI communication, information and functional models, TMN functional, physical and information architecture, case study, CORBA based management, web based management, DTMF, JMX). Interoperability issue and in-depth study of a specific functional area overview of known techniques (e.g. dual MIBs), alarm filtering techniques (e.g. artificial intelligence), alarm correlation techniques (e.g. artificial intelligence, coding theory). Approaches still a research level (mobile agent based network management, active network based network management, policy based artwork management, use of SML/web services). A project is required.

Component(s):
Lecture

INSE 8901 Master of Applied Science Research and Thesis (29 credits)

Description:
Students must complete a 29-credit thesis as part of their degree requirements. The thesis must represent the results of the student's independent work after admission to the program. The proposed topic for the thesis, together with a brief statement outlining the proposed method of treatment, and the arrangement made for faculty supervision, must be approved by the GCS Graduate Studies Committee. For purposes of registration, this work will be designated as INSE 8901. The thesis will be evaluated by the student's supervisor(s), and at least two examiners appointed by the GCS Graduate Studies Committee, one of whom may be external to the student's department.

Component(s):
Thesis Research

Mechanical, Industrial and Aerospace Engineering Courses

INDU 6111 Theory of Operations Research (4 credits)

Description:

This course introduces the fundamentals of convex analysis such as polyhedral sets and the representation theorem. Advanced topics in linear optimization are also covered, such as state-of-the-art solution methods (revised and dual simplex methods, path following interior point methods), duality theory and parametric analysis, Farkas lemma, and KKT optimality conditions. An introduction to other advanced topics (Dantzig-Wolfe decomposition, dynamic programming, and stochastic decision processes) is given. A project is required.

Component(s):

Lecture

INDU 6121 Applied Optimization (4 credits)

Description:

Topics include model building in optimization, model validation, economic interpretation, sensitivity analysis, algorithms and commercial optimization software for problem solving. Mathematical models in deterministic and nondeterministic settings with linear, integer, and nonlinear programming formulations are developed. Applications of optimization models in production, transportation, finance, scheduling, and healthcare systems are presented. A project is required.

Component(s):

Lecture

INDU 6131 Graph Theory with System Applications (4 credits)

Description:

Basic concepts; trees, circuits and cutsets; Eulerian and Hamiltonian graphs; directed graphs; matrices of a graph, graphs and vector spaces; planarity and duality; connectivity, matching and colouring; flows in networks: max-flow min-cut theorem, minimum cost flows; optimization on graphs: minimum-cost spanning trees, optimum branching and shortest paths. Project: two hours per week.

Component(s):

Lecture

Notes:

- Students who have taken ENGR 6111 may not receive credit for this course.

INDU 6141 Logistics Network Models (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INDU 6121.

Description:
This course covers the following wide range of operational issues in the transportation and logistics industry. Different analytical models and their solution strategies are also introduced. Overview of transportation systems including airlines, railways, ocean liners, cargo, energy transportation and pipelines; Supply chain characterization; Site location; Distribution planning; Vehicle routing; Fleet scheduling; Crew scheduling; Demand management; Replenishment management; Revenue management; Geographic information systems; Real-time network control issues. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course INDU 342. Students who have completed INDU 342 may not take this course for credit.

INDU 6151 Decision Models in Service Sector (4 credits)

Description:
Introduction to service strategy and operations. Service demand forecasting and development of new services. Service facility location and layout planning. Applications of decision models in service operations and service quality control. Cost analysis, queuing models, risk management and resource allocation models for service decisions. Service outsourcing and supply chain issues. Efficiency and effectiveness issues in different service sectors such as emergency force deployment, municipal resource allocation and health care. Case studies using operations research, operations management, and statistical techniques. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course INDU 466. Students who have completed INDU 466 may not take this course for credit.

INDU 6161 Design and Operations of Supply Chain Networks (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INDU 6121.

Description:
This course analyzes various supply chain operation issues from an engineering point of view. The course covers topics such as: supply chain issues and opportunities; performance evaluation of supply chains; supply chain planning and optimization; collaborative decision making in supply chains; transportation planning in supply chains; capacity planning in supply chains; designing global supply chains; risk management in supply chains; sustainable supply chain management. A project is required.

Component(s):
Lecture

INDU 6211 Production Systems and Inventory Control (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INDU 6121.

Description:
This course covers various operational and planning issues in manufacturing industry: Integrated production planning and control. Large scale model development for demand forecasting, materials requirements planning and manufacturing resource planning (MRP/MRPII), production-inventory systems, production planning; models for line balancing, lot sizing, dispatching, scheduling, releasing. Models for inventory control, determination of order quantities and safety stocks, inventory replenishment systems. Supply chain management. Just-in-Time systems, lean and Agile manufacturing. A project is required.

Component(s):
Lecture

INDU 6221 Lean Enterprise (4 credits)

Description:
This course covers topics that are necessary to establish a lean culture at the system level in various organizations: Introduction to principles of the lean enterprise, process management, waste elimination and process variation, five S's and workplace organization, lean analysis tools and performance measurements, Lean Six Sigma, enterprise value stream mapping, visual workplace, lean product development, lean business administration. A project is required.

Component(s):
Lecture

INDU 6231 Scheduling Theory (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INDU 6121.

Description:
This course covers models for sequencing and scheduling activities, including: static and dynamic problems; deterministic and stochastic models; single machine processing, parallel machine processing, multistage problems including flow-shops and job-shops; complexity issues; exact and heuristic solution methods; average and worst case performance analysis of heuristic methods; applications in manufacturing environments; current research trends. Project: two hours per week.

Component(s):
Lecture; Reading

Notes:

- Students who have taken ENCS 6201 may not receive credit for this course.

INDU 6241 Lean Manufacturing (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INDU 6211.

Description:
Introduction to the basic principles and concepts of lean manufacturing; tools of lean manufacturing, including value stream mapping, standardized work, setup reduction; mapping the current state; mixed model value streams; mapping the future state; Takt time, finished goods strategy, continuous flow, level pull, pacemaker, pitch, interval; implementing the future state. A project is required.

Component(s):
Lecture

INDU 6251 Facilities Planning and Warehouse Operations (4 credits)

Description:
This course is designed to provide advanced concepts, theory and procedures for the study of facilities location, physical layouts, material flow, and material handling, warehouse operations planning and management systems, warehouse design, automation and control. Analytical procedures are developed to enhance the decision-making process in the design, rationalization and improvement of manufacturing or service facilities. The knowledge learned in this course is integrated with knowledge from related courses to develop a design project. A project is required.

Component(s):
Lecture

INDU 6310 Applied Probability and Statistics for Engineers (4 credits)

Description:
This course introduces probability and statistics concepts frequently used in engineering applications. Probability theory, randomness, conditional probability, joint probability, independence and probability distributions are covered. Data collection, sampling, confidence intervals, hypothesis formulation, errors, estimation topics are given. Linear and non-linear regression, analysis of residuals and remedial measures, transformation of data, multiple, polynomial and weighted regression, model selection techniques, and joint confidence regions concepts are taught with relevant industry applications. Statistical packages are introduced. A project is required.

Component(s):
Lecture

Notes:

- This course may not be taken by MASc and PhD students for credit.

INDU 6311 Discrete System Simulation (4 credits)

Description:
Probability theory and queuing theory; discrete and continuous variables and their distributions; deterministic and stochastic models; building valid and credible models. Computer simulation of discrete-change systems subject to uncertainty techniques to verify quality of input data; analysis of output data; determination of simulation run-length and number of replications; random number generations, variance reduction techniques, transient and steady state behaviour; comparison of alternative systems. A project is required.

Component(s):
Lecture

Notes:

- Students who have taken ENGR 6491 may not receive credit for this course.

INDU 6321 Introduction to Six Sigma (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INDU 6310.

Description:
This course offers an overview of the Six Sigma concept; Six Sigma deployment practice; Six Sigma methodologies for process improvement and process (DMAIC) and for product design (DMADV); Integration of Lean techniques in Six Sigma (Lean Six Sigma); Overview of different quality management tools applied in Six Sigma; Application of Designed of Experiments in Six Sigma; Design for Six Sigma through the application of the Robust Parameter Design; Six Sigma project management. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course INDU 441. Students who have completed INDU 441 may not take this course for credit.

INDU 6331 Advanced Quality Control (4 credits)

Description:

Introduction to advanced quality control and improvement concepts. Fundamentals of statistical methods and theoretical basis for quality control methods. Advanced and newly developed quality control and improvement methods such as modified and acceptance charts, multiple stream process control, control charts with adaptive sampling and engineering process control for quality. International standards of acceptance sampling. Economic design and implications of quality control and improvement procedures. A project is required.

Component(s):

Lecture

INDU 6341 Advanced Concepts in Quality Improvement (4 credits)

Description:

The foundations of modern quality improvement, scientific basis of quality engineering, statistical experimental design issues such as randomized blocks, factorial designs at two levels, fractional factorial designs at two levels, applications on factorial designs, building models, and explanation and critique of Taguchi's contributions. A project on selected topics is required.

Component(s):

Lecture

Notes:

- This is a cross-listed course.
- Students who have taken MECH 6461 may not receive credit for this course.

INDU 6351 System Reliability (4 credits)

Description:

Review of probability theory; definition of various measures (reliability, availability, MTTF, etc.) and related probability distributions; reliability evaluation of redundant systems (series, parallel, series-parallel, bridge network, etc.); two and three parameter Weibull analysis; failure data analysis; trend analysis; goodness of fit test (Kolmogorov/Smirnov test); introduction of stress-strength modelling; homogeneous Markov models; reliability evaluation of cold, warm, and hot standby systems; introduction to reliability testing; case studies. Knowledge of a first course in probability theory is assumed. Project: two hours per week.

Component(s):

Lecture

Notes:

- Students who have taken ENGR 6451 may not receive credit for this course.

INDU 6361 Discrete Optimization (4 credits)

Prerequisite/Corequisite:
Permission of the instructor is required.

Description:
Topics include mathematical modelling of industrial and service systems by integer programming (IP); choices in model formulations; optimality, relaxations and bounds; well-solved problems in IP; computational complexity; branch-and-bound methods; polyhedral theory and cutting plane algorithms; Lagrangean duality; software for solving IPs; other optimization techniques. A project is required.

Component(s):
Lecture

INDU 6371 Stochastic Optimization (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INDU 6111.

Description:
Topics include an overview of stochastic optimization models; two-stage and multi-stage stochastic programming; algorithms for solving large-scale stochastic programming models, including sample average approximation (SAA), L-shaped method and scenario decomposition algorithms; robust optimization approach. A project is required.

Component(s):
Lecture

Notes:

- Students who have received credit for the course INDU 691 (Stochastic Optimization) may not take this course for credit.

INDU 6381 Applications of Reliability Engineering (4 credits)

Description:
Topics include an introduction to reliability function; reliability program; failure; requirement allocation and design optimization; painless risk management; design optimization by test; validation; durability; stressstrength; nuisances and no fault found (NFF); operating with failure; fail-safe and operating with failure; real-time health monitoring. A project is required.

Component(s):
Lecture

Notes:

- Students who have taken INDU 691 (Application of Reliability Engineering) may not receive credit for this course.

INDU 6391 Reliability and Maintenance for Design and Manufacturing (4 credits)

Description:
Topics include fundamentals of product design and system validation methodologies to establish maintenance programs; design of experiment, test for design validation, pass/fail analysis, reliability growth models, reliability centred maintenance, test for manufacturing; accelerated life and stress tests; failure reporting, analysis and corrective action systems (FRACAS), maintenance programs, lifecycle analysis, end-of-life analysis and industrial approach for reliability; concepts and topics will be covered through real-life case studies. A project is required.

Component(s):
Lecture

Notes:

- Students who have taken INDU 691 (Reliability and Maintenance for Design and Manufacturing) may not receive credit for this course.

INDU 6411 Human Factors Engineering (4 credits)

Description:
Elements of anatomy, physiology and psychology; auditory and visual display engineering; engineering anthropometry; human capabilities and limitations; manual material handling: design of work places, human-machine system design; shift work and jet lag; acquisition and retention of skill; toxicity and hazard; human reliability. A project on a current topic is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course INDU 412. Students who have completed INDU 342 may not take this course for credit.

INDU 6421 Systems Safety Engineering and Management (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INDU 6310.

Description:
This course covers a variety of topics in safety engineering that provide the necessary knowledge and skills in order for engineers to

design and manage systems where life-critical components will perform as expected, even when sub-components fail. Design concepts for safe operation with failure, design for human error and design for availability are introduced. Generic and safety dedicated engineering techniques are taught. Common safety management architectures for service and manufacturing systems, existing safety standards, guidelines in different industries, and their impact on the design processes across the life cycle of a product from initial concept to continuous certification are included. A project is required.

Component(s):
Reading

INDU 6521 Quantitative Methods in Healthcare Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INDU 6121.

Description:
Topics include mathematical modeling and optimization methods in healthcare problems, healthcare staff planning and scheduling, operating room management, and appointment scheduling in clinics. Other operational issues such as production and delivery of radio-pharmaceuticals, resource allocation and capacity planning in hospitals, ambulance redeployment and dispatching are discussed. Finally, system-level healthcare planning and management tools and methods such as routing and scheduling of caregivers in home-health industries, healthcare facility location, inventory management of blood products, kidney exchange optimization and optimization in radiation therapy (intensity-modulated radiation - IMRT and volumetric modulated arc therapy - VMAT) are introduced. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course INDU 431. Students who have completed INDU 431 may not take this course for credit.

INDU 6611 Applied Industrial Systems Analytics (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: INDU 6121; INDU 6310.

Description:
The course covers Analytics as it is divided into three categories according to functional classification of analytics methods: descriptive, predictive, and prescriptive. By taking a hands-on teaching approach, graduate students are taught a set of techniques of descriptive and predictive analytics, which emphasizes extensive analysis of real (or realistic) data sets from a variety of organizations such as manufacturing, service and healthcare using statistical packages. Students are also taught techniques for proper visualization and presentation of the results of their analysis. Specific analytics methods such as logistic regression, time series, decision trees, support vector machines, k-nearest neighbors, k-means are covered. A project is required.

Component(s):
Lecture

INDU 691 Topics in Industrial Engineering (4 credits)

Description:
Subject matter will vary from term to term and from year to year.

Component(s):
Lecture

Notes:

- Students may re-register for these courses provided that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule

INDU 6990 Industrial Engineering Capstone (8 credits)

Prerequisite/Corequisite:
Students must have completed a minimum of 16 credits in the program prior to enrolling.

Description:
A supervised design, simulation or experimental capstone design project in the students' area of specialization. Students may work in groups to undertake: a. A project with a company, governmental organization, or an NGO, supervised jointly by a faculty member and a member of the partner organization; b. An engineering design that has potential to be commercialized, where a faculty member or District 3 representative supervises the project. Students may also opt to tackle a research problem under the supervision of a faculty member. A written report and a public presentation is required. Final report must include a detailed description of the industry experience or the research problem and clearly outline the engineering analysis.

Component(s):
Lecture

Notes:

- Students cannot take this course for credit towards MASc or PhD degrees.
- This is a two-term course (Fall and Winter only).

INDU 6991 Engineering Management Industrial Stage I (8 credits)

Prerequisite/Corequisite:
Students must have completed a minimum of 16 credits in the program prior to enrolling.

Description:

The Industrial Stage I is designed to provide students with the opportunity to complete an engineering management project in a company, governmental organization, or a NGO under the supervision of an organization partner and a faculty member. Students are required to provide a written report and give a seminar.

Component(s):
Practicum/Internship/Work Term

Notes:

- Students cannot take this course for credit towards MASc or PhD degrees.

INDU 6992 Engineering Management Industrial Stage II (8 credits)

Prerequisite/Corequisite:
The following course must be completed previously: INDU 6991.

Description:
The Industrial Stage II is designed to provide students with the additional opportunity to complete the second engineering management project in a company, governmental organization, or a NGO under the supervision of an organization partner and a faculty member. Students are required to provide a written report and give a seminar.

Notes:

- Students cannot take this course for credit towards MASc or PhD degrees.

MECH 6011 Analysis and Design of Pneumatic Systems (4 credits)

Description:
Principles and operating characteristics of fluidic elements; modelling of wall attachment; beam deflection; turbulent and vortex amplifiers; design and analysis of microdiaphram and diaphram ejector amplifiers; methods of evaluation performance characteristics of fluid devices; passive fluidic elements; digital and analog fluidic circuit theories and their applications; case studies of fluidic systems. A project on selected topics is required.

Component(s):
Lecture

MECH 6021 Design of Industrial Control Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6101 or equivalent.

Description:

Analog and digital control system design. Analog controller design methods: lead and lag compensators, pole placement, model matching, two-parameter configuration, plant input/output feedback configuration. Introduction to state-space control system. State estimator and state feedback. Introduction to digital control system. Z-transform. Difference equations. Stability in the Z-domain. Digital implementation of analog controllers. Equivalent digital plant method. Alias signals. Selection of sampling time. PID controller. A project on specific topic or applications is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with MECH 473. Students who have received credit for MECH 473 may not take this course for credit.

MECH 6041 Virtual Systems Engineering (4 credits)

Prerequisite/Corequisite:
Permission of the instructor is required.

Description:
Theory and application of virtual systems with an emphasis on virtual prototyping of mechanical systems. Virtual system modelling: particle systems, rigid body systems, lumped parameter models, and multi-domain system modelling. Non-real-time simulation methods: numerical integration methods, stiff systems and implicit methods. Hardware-in-the-loop simulation (HIL): Real-time simulation, multi-rate simulation and scheduling. Stability, invariance, and robustness. Virtual environments. Distributed simulation and time delay analysis. Design and analysis of virtual engineering systems: specification, design, verification, validation and prototype testing. A project is required.

Component(s):
Lecture

MECH 6051 Process Dynamics and Control (4 credits)

Description:
Dynamics of mechanical and chemical processes: linear and nonlinear system capacity, resistance, piping complexes; characteristics and dynamics of control valves; process time constants; proportional, reset and derivative control actions; feed forward and cascade control, direct digital control case studies on design of level control; p-4 control and heat exchanger control; analysis of industrial hazards and security. A project on selected topics of current interest is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have received credit for the undergraduate equivalent version may not take this course for credit.

MECH 6061 Analysis and Design of Hydraulic Control Systems (4 credits)

Description:
Introduction to fluid power control technology; fundamentals of fluid transmission media; basic hydraulic control system components and circuits; hydraulic servosystems; modelling and dynamic analysis of hydraulic systems – design examples; basic pneumatic control system components and circuits – design examples. A projects on selected topics is required.

Component(s):
Lecture

Notes:

- This is a cross-listed course. Students who have taken the undergraduate equivalent version may not take this course for credit.

MECH 6081 Fuel Control Systems for Combustion Engines (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201.

Description:
Introduction to fuel control systems for combustion engines with fuel injection. Dynamics of fuel injection for steady-state and transient process; injection characteristics for different combustion patterns; speed and power control in relation to engine characteristics; design principles of fuel systems; special requirements for starting, shut-down, schedule modulation; testing methods; wear and reliability problems. Case studies include: multicylinder in-line injection pump, rotary distributor injection pump, mecano-pneumatic fuel control unit. Full term project work on alternative fuel delivery systems and emissions control for combustion engines. Modelling and simulation. Demonstration of alternative fuel injection system on diesel engine in lab.

MECH 6091 Flight Control Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6101 or equivalent.

Description:
Basics of flight dynamics modelling: axes systems and notation; equations of motion; aerodynamic forces and moments, airplane stability, aircraft on the ground; simulator flight model design. Flight instruments: classification; principles of operation, cockpit displays. Flight controls basics: configuration; control forces; primary and secondary controls. Introduction to automatic flight control: stability augmentation; autopilots; flight guidance and flight management systems; design examples. Flight simulation: classification; standards and regulations; system configuration and components. Projects on selected topics are required.

Component(s):
Lecture

MECH 6101 Kinetic Theory of Gases (4 credits)

Description:
Equations of state for gases; molecular explanation of equations of state; introduction to quantum mechanics; the molecular theory of thermal energy and heat capacity; molecular velocity distribution, molecular collisions and the transport properties of gases, introduction to chemical kinetics. A project on specific topic or applications is required.

Component(s):
Lecture

MECH 6111 Gas Dynamics (4 credits)

Description:
Combined effects in one-dimensional flow; multidimensional flow; method of characteristics; one-dimensional treatment of non-steady gas dynamics; shock wave interactions; instability phenomena of supersonic intake diffusers; shock-boundary layer interactions. Projects on unsteady gas dynamics and on shock wave propagation and interactions are required.

Component(s):
Lecture

Notes:

- This course is cross-listed with MECH 461. Students who have received credit for MECH 461 may not take this course for credit.

MECH 6121 Aerodynamics (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201.

Description:
Flow conservation equations, incompressible Navier-Stokes equations, inviscid irrotational and rotational flows: the Euler equations, the potential and stream function equations. Kelvin, Stokes and Helmholtz theorems. Elementary flows and their superposition, panel method for non-lifting bodies. Airfoil and wing characteristics, aerodynamics forces and moments coefficients. Flow around thin airfoils, Biot-Savart law, vortex sheets. Flow around thick airfoils, the panel method for lifting bodies. Flow around wings, Prandtl's lifting line theory, induced angle and downwash, unswept wings, swept compressibility correction rules, the area rule. Transonic flow: small disturbance equation, full potential equation, supercritical airfoils. A project on specific topic or applications is required.

Component(s):
Lecture

Notes:

- Students who have completed AERO 464 may not take this course for credit.

MECH 6131 Conduction and Radiation Heat Transfer (4 credits)

Description:
Solutions by analytical, numerical, and analogue methods of steady and transient temperature fields with and without heat sources; introduction to convection. Basic concepts and relations of radiation heat transfer, radiation of strongly absorbing media, and radiation of weakly absorbing media. A project on selected topics is required.

Component(s):
Lecture

MECH 6141 Heat Exchanger Design (4 credits)

Description:
Review of heat transfer and flow losses; design consideration of heat exchangers; double pipe exchanger; shell and tube exchanger; extended surfaces; condenser, evaporator, regenerator, cooling tower. A project on selected topics is required.

Component(s):
Lecture

MECH 6161 Gas Turbine Design (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MECH 6171.

Description:
Study of practical criteria which influence the design of a gas turbine engine including relevant mechanical and aerodynamic constraints. The aerodynamics of each of the three major components of a modern turbo-fan engine, namely the compressor, the combustor and the turbine is considered. Air system acoustics, engine aerodynamic matching of components and modern performance testing methods. A design project is assigned for each of these components. A project on specific topic or applications is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course AERO 465. Students who have completed AERO 465 may not take this course for credit.

MECH 6171 Turbomachinery and Propulsion (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201.

Description:
Review of the gas turbine engine cycle and components arrangement. Types of turbo-propulsion for aircraft: turboprop, turbofan and turbojet. Energy transfer in incompressible and compressible turbomachines: the Euler equation, velocity triangles. Axial-flow compressors; mean-line analysis. Mechanisms of losses in turbomachines. Three-dimensional motion in turbomachines; the radial equilibrium equation and its numerical solution by finite difference methods. Dimensional analysis of incompressible and compressible flow in turbomachines, compressor and turbine performance maps; surge and stall. Centrifugal compressors. Axial-flow turbines. Prediction of performance of gas turbines, components matching. Projects on selected topics are required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course AERO 462. Students who have completed AERO 462 may not take this course for credit.

MECH 6181 Heating, Air Conditioning and Ventilation (4 credits)

Description:
The effect of air temperature, humidity and purity on physiological comfort; overall heat transmission coefficients of building sections, air infiltration, ventilation and solar radiation loads; heating and air conditioning load calculations; heating, air conditioning and ventilating systems, equipment and controls; design of hot water piping and air distribution systems, pressure drop calculations; selection and specifications of mechanical equipment for heating, ventilation and air conditioning applications. A project on selected applications is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course MECH 453. Students who have completed MECH 453 may not take this course for credit.

MECH 6191 Combustion (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MECH 6111.

Description:
Chemical thermodynamics; review of chemical kinetics; conservation equations for multicomponent reacting systems; detonation and deflagration of premixed materials; premixed laminar flames; gaseous diffusion flames, droplet combustion; turbulent flames; two-phase reacting systems; chemically reacting boundary layers. Projects on selected topics are required.

Component(s):
Lecture

MECH 6231 Helicopter Flight Dynamics (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously or concurrently: MECH 6311 and MECH 6121.

Description:
Fundamental aspects of helicopter technology; rotary wing aerodynamics; aeromechanical stability; hover and forward flight performance; ground and air resonance; introduction to vibration and structural dynamic problems in helicopter; case studies in the rotorcraft field. Case studies and projects on selected topics are required.

Component(s):
Lecture

MECH 6241 Operational Performance of Aircraft (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MECH 6121.

Description:
Introduction to fixed-wing aircraft operation. Flying environment and its measurement by aircraft instrumentation. Computation of lift and drag, effects of viscosity and compressibility. Review of piston, turboprop, turbojet and turbofan powerplants. Operational performance of aircraft in climb, cruise, descent and on ground. Advanced aircraft systems. Operational considerations in aircraft design. Projects on selected topics are required.

Component(s):
Lecture

MECH 6251 Space Flight Mechanics and Propulsion Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MECH 6111. If prerequisites are not satisfied, permission of the instructor is required.

Description:
Classification of space propulsion systems; Tsiolkovskij's equation; ideal rocket and nozzle design; flight performance; basic orbital mechanics; chemical propellant rocket performance analysis; fundamentals of liquid and solid propellant rocket motors; electric, solar,

fusion thruster. A project is required.

Component(s):
Lecture

MECH 6301 Vibration Problems in Rotating Machinery (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6311.

Description:
Torsional vibrations critical speeds, rotors driven by reciprocating machines, finite element modelling, whirling of shafts, gyroscopic effects, rotors on fluid film bearings, instability in torsional and bending vibrations, balancing, response to support excitations, condition monitoring. Projects on selected applications are required.

Component(s):
Lecture

MECH 6311 Noise and Vibration Control (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6311.

Description:
Introduction to noise and vibration, measurement units. Review of wave theory, noise control criteria and standards, sources and nature of mechanical equipment noise, devices for noise control such as silencers, baffles and acoustic enclosures. Machinery vibration sources, radiation of noise from vibrating structures, devices and methods for vibration control such as isolators, dampers, absorbers and in-situ balancing. Active control of noise and vibration. Projects on selected applications are required.

MECH 6321 Optimum Design of Mechanical Systems (4 credits)

Description:
Survey of practical methods for optimum design of mechanical systems; optimal performance criteria and selection of design variables. Introduction to analytical and numerical optimization methods for single- and multi-variable unconstrained problems: direct search and gradient methods. Constrained optimization. Optimality criterion techniques for mechanical systems. Case studies in the area of machine tools, structural systems, machine element design, vehicle design, and hydraulic control systems. Discussion on commercial software packages, their capability, availability and limitations. An optimization project on selected topics is required.

Component(s):
Lecture

MECH 6341 Engineering Analysis of Smart Materials and Structures (4 credits)

Description:
Topics include introduction to smart materials and structures; overview of mathematical models for mechanical and electrical systems; mathematical representation of smart systems; piezoelectric materials and their constitutive equations; electromechanical coupling in piezoelectric based systems and structures and their governing equations; shape memory alloys and their constitutive models; electrical activation of shape memory alloys and their dynamic modelling; electrorheological (ER) and magnetorheological (MR) fluids and elastomers; constitutive models for ER and MR fluids and elastomers; dynamic modelling and vibration analysis of ER and MR based adaptive devices and structures; application of smart materials as energy dissipating elements in structural systems for passive, semi-active and active vibration control; application of smart materials in motion control. A project is required.

Component(s):
Lecture

MECH 6351 Modal Analysis of Mechanical Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6311.

Description:
Natural frequencies and normal modes of multi-degree-of-freedom systems; orthogonality of normal modes; eigenvalue and eigenvector extraction methods; vibration response using normal mode analysis; complex natural frequencies and complex modes in damped systems, modal damping random response considerations; nonsymmetric systems using biorthogonality relations; modal parameter identification from tests, application of modal analysis to mechanical systems. Projects on selected applications are required.

Component(s):
Lecture

MECH 6361 Mechanics of Biological Tissues (4 credits)

Description:
The course deals with mechanical behaviour of tissues in human body such as bone, cartilage, ligaments, tendons, blood vessels, muscles, skin, teeth, nerves. Classification of biological tissues; mechanical properties in vivo and in vitro testing; constitutive relationships, viscoelastic behaviour and rate/time dependency; remodelling and adaption due to mechanical loading; analogous mechanical systems. A project on current topic is required.

Component(s):
Lecture

MECH 6421 Metal Machining and Surface Technology (4 credits)

Description:
Theoretical and practical aspects of mechanics and dynamics of metal machining; tool geometry in machine and working reference systems with their transformation matrices; machinability; wear; cutting forces; temperature distribution; tool material unconventional machining; machining economics; optimizing techniques for cutting conditions; surface mechanics and application of random processes. A project on selected topics is required.

Component(s):
Lecture

MECH 6431 Introduction to Tribology (Wear, Friction and Lubrication) (4 credits)

Description:
Contact between stationary surfaces; dry friction; rolling contract; wear; boundary lubrication; lubricating oils and greases; hydrodynamic journal bearings; case studies in Tribology as applied to design and manufacturing problems. A project on specific topic or applications is required.

Component(s):
Lecture

MECH 6441 Stress Analysis in Mechanical Design (4 credits)

Description:
Stress analysis for design of elastic and visco-elastic mechanical components subject to thermal, fatigue, vibrational and chemical environments; buckling and creep; cumulative damage. Case studies, and project from selected applications are required.

Component(s):
Lecture

MECH 6451 Computer-Aided Mechanical Design (4 credits)

Description:
Concept of value and decision theory in design; design application and case studies in the implementation of digital computer-oriented design of engineering systems. Examples include design of specific machine elements, design of vehicle suspension, hydraulic positioning systems, ship propulsion system, multi-speed gear box, and cam drives. Introduction to identification, optimization, and parameter sensitivity. Implementation of these methods uses remote terminals and graphic display units. A project is required.

Component(s):
Lecture

MECH 6471 Aircraft Structures (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MECH 6441 or equivalent.

Description:
Aero/performance aspects of aircraft structures; Airworthiness and design considerations; Materials; Static, vibratory and aeroelastic loadings; Propulsion-induced loadings; Functions and fabrication of structural components; Stress analysis of wings, fuselages, stringers, fuselage frames, wing ribs, cut-outs in wings and fuselages, and laminated structures; Buckling of aircraft structures: local buckling, instability of stiffened panels; flexural-torsional buckling; Fracture and fatigue failures. Case studies.

Component(s):
Lecture

MECH 6481 Aeroelasticity (4 credits)

Description:
Aerodynamic loading of elastic airfoils; phenomenon of divergence; effect of flexible control surface on divergence of main structure; divergence of one- and two-dimensional wing models; phenomenon of flutter; flutter of two- and three-dimensional wings; approximate analysis techniques; flutter prevention and control; panel flutter in high speed vehicles; flutter of turbomachine bladings; vortex induced oscillations; bridge buffeting. A project on specific applications is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course AERO 431. Students who have completed AERO 431 may not take this course for credit.

MECH 6491 Engineering Metrology and Measurement Systems (4 credits)

Description:
Introduction to metrology, linear and geometric tolerancing, non-optical and optical methods in form measurement, fundamentals of optical metrology, interferometry - theory and overview, Moiré and phase shifting interfereometry, speckle interferometry and holography, light sources, detectors and imaging systems. Applications to precision measurement, Doppler vibrometry and dynamic characterization, applications to MEMS (Micro-Electro-Mechanical Systems), and special topics include: nanometrology, X-ray interferometry and interference spectroscopy. A project is required.

Component(s):
Lecture

MECH 6501 Advanced Materials (4 credits)

Description:
Advanced composites. Polymer matrix composites. Resins and fibers. Metal matrix composites. Ceramic matrix composites. Interfaces. Mechanical properties. Applications. A project on selected topics of current interest is required.

Component(s):
Lecture

MECH 6511 Mechanical Forming of Metals (4 credits)

Description:
Mechanisms of plastic deformation at ambient and elevated temperatures; plasticity theory; mechanical forming processes; forging; rolling; extrusion; wire drawing; deep drawing; bending; results of processing; mechanical properties; residual stresses; fibrous textures and preferred orientations; effects of annealing. Process modelling by shearline or finite element analysis. A project on current research topics and selected applications is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course MECH 421. Students who have completed MECH 421 may not take this course for credit.

MECH 6521 Manufacturing of Composites (4 credits)

Description:
Hand lay-up. Autoclave curing. Compression molding. Filament winding. Resin transfer molding. Braiding. Injection molding. Cutting. Joining. Thermoset and thermoplastic composites. Process modelling and computer simulation. Nondestructive evaluation techniques. A project on selected topics of current interest is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course MECH 425. Students who have completed MECH 425 may not take this course for credit.

MECH 6531 Casting (4 credits)

Description:
Phase equilibrium diagrams; mechanisms of solidification; design of castings for various moulding processes, section sizes, dimensional accuracies and surface finishes; continuous casting; control of grain size; segregation and porosity. Defects in castings. A project on current research topic and selected applications is required.

Component(s):
Lecture

MECH 6541 Joining Processes and Nondestructive Testing (4 credits)

Description:
Principles of joining; fusion welding; arc, torch, plasma, electron beam, resistance, etc; solid state welding; heterogeneous hot joining (brazing, soldering); heterogeneous cold joining; metallurgy of joints; joint properties; nondestructive testing processes; radiography, ultrasonic, magnetic particle, die penetrant, etc. A project on current research topic or selected applications is required.

Component(s):
Lecture

MECH 6551 Fracture (4 credits)

Description:
Fracture mechanisms; ductile and cleavage; brittle fracture; notch effects; propagation of cracks; ductile-brittle transition; inter-granular fracture; hydrogen embrittlement; fatigue initiation mechanisms; crack propagation; preventive design; creep failure, mechanisms maps, fatigue; pore formation; grain boundary sliding; high temperature alloys, testing techniques; fractography. A project on current research topics and selected applications is required.

Component(s):
Lecture

MECH 6561 High Strength Materials (4 credits)

Description:
Studies of the microstructures responsible for high strength and of the thermomechanical treatments producing these microstructures; dislocation theory; strain hardening; strengthening by solid-solution, massive hard phases, precipitation, dispersed particles, and martensitic and bainitic structures; fibre and particulate composites; surface treatments; residual stresses of thermal or mechanical origin. A project on current research topics and selected applications is required.

Component(s):
Lecture

MECH 6571 Corrosion and Oxidation of Metals (4 credits)

Description:
Electrochemical corrosion and preventative measures. Stress corrosion, corrosion fatigue. Oxidation at low and high temperatures and protective measures. Selection of alloys and coatings. A project on current research topic or selected applications is required.

Component(s):
Lecture; Reading

MECH 6581 Mechanical Behaviour of Polymer Composite Materials (4 credits)

Description:
General applications of polymer composite materials in the aircraft, aerospace, automobile, marine, recreational and chemical processing industries. Different fibres and resins. Mechanics of a unidirectional lamina. Transformation of stress, strain, modulus and compliance. Off-axis engineering constants, shear and normal coupling coefficients. In-plane and flexural stiffness and compliance of different laminates including cross-ply, angle-ply, quasi-isotropic and general bidirectional laminates. Strength of laminates and failure criteria. Micro-mechanics. Projects on selected applications are required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course MECH 422. Students who have completed MECH 422 may not take this course for credit.

MECH 6601 Testing and Evaluation of Polymer Composite Materials and Structures (4 credits)

Description:
Theory and practice for the determination of tensile, compression and shear properties of composite materials; techniques for the determination of physical and chemical properties; non-destructive techniques such as ultrasonics, acousto-ultrasonics, acoustic emission, infrared and lasers for evaluation of composite structures. A project on selected topics of current interest is required.

Component(s):
Lecture

MECH 6611 Numerically Controlled Machines (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MECH 6451 or equivalent.

Description:
Positioning and contouring NC machines, typical NC applications; analysis of typical NC systems and design considerations; components. A design project on multi-surface machine parts is required.

Component(s):
Lecture

MECH 6621 Microprocessors and Applications (4 credits)

Prerequisite/Corequisite:
A course in industrial electronics must be completed prior to enrolling. If prerequisites are not satisfied, permission of the instructor is required.

Description:
Introduction to the concepts and practices of using microprocessors and micro-computers in such applications as instrumentation, manufacturing, control and automation; architecture and programming techniques; interface logic circuits; I/O systems; case studies of mechanical engineering applications. A project on specific topic or applications is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course MECH 471. Students who have completed MECH 471 may not take this course for credit.

MECH 6631 Industrial Automation (4 credits)

Description:
Introduction to mechanization of industrial processes such as machining, material handling, assembling, and quality control; selection of actuators and sensors for mechanization; design of sequential control circuits using classical methods, ladder diagram, travel-step diagram and cascade method; specifying control sequences using GRAFCET and FUP; special purpose circuits such as emergency circuits, timers, and programmable logic controllers (PLCs); case studies dealing with typical industrial manufacturing processes and computer simulation. A project on specific topic or applications is required.

Component(s):
Lecture

MECH 6641 Engineering Fracture Mechanics and Fatigue (4 credits)

Description:
Fracture mechanics and fatigue of machine elements and structures; Linear Elastic Fracture Mechanics (LEFM); Elastic Plastic Fracture Mechanics (EPFM); Finite Element Analysis for fracture; LEFM and EPFM Testing; Fracture mechanics approach to fatigue crack growth problem; Constant-amplitude, variable-amplitude and stochastic loading cases; Industrial applications to mechanical design and fracture and fatigue control in machine elements and structures; Damage tolerance design. A case study or project on selected applications is required.

Component(s):
Lecture

MECH 6651 Structural Composites (4 credits)

Description:
Analysis for design of beams, columns, rods, plates, sandwich panels and shells made of composites; anisotropic elasticity; energy methods; vibration and buckling; local buckling in sandwich structures; free edge effects and delamination; joining; and failure considerations in design. A project on selected applications is required.

Component(s):
Lecture

MECH 6661 Thermodynamics and Phase Equilibria of Materials (4 credits)

Description:
Thermodynamic laws and relationships. Partial and relative state functions: Activities in multicomponent systems, reference and standard states, solution thermodynamics. Thermodynamics of phase transformations and chemical reactions in engineering materials. Calculation of thermodynamic functions and properties. Experimental methods of determining thermodynamic properties. Multicomponent and multiphasic systems. Generalized phase rules, phase diagrams, stability diagrams and other diagram types. Computational thermodynamics for developing engineering materials. A project is required.

Component(s):
Lecture

MECH 6663 Coatings and Surface Engineering (4 credits)

Description:
This course provides and introduction to coating and surface engineering. It discusses the properties of solid surfaces and materials for

surface protection in aggressive environments (wear, corrosion, oxidation, high temperature). It covers several coating and surface treatment processes such as PVD, CVD, thermal spray (plasma, HVOF, arc spray, cold spray), laser cladding, plating, and anodizing. Finally, it also introduced advanced concepts such as coating characterization and performance assessment. A project on current research topic or selected applications is required.

Component(s):
Lecture

Notes:

- Students who have received credit for MECH 691 Coatings and Surface Engineering may not take this course for credit.

MECH 6671 Finite Element Method in Machine Design (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MECH 6441.

Description:
Role of Finite element method in machine design. Variational principles. Formulation of the finite element problem in stress, vibration and buckling analyses of machine components. Different elements and interpolation functions. Application in machine design; fracture. A case study or project on selected applications is required.

Component(s):
Lecture

MECH 6681 Dynamics and Control of Nonholonomic Systems (4 credits)

Description:
Kinematics of nonholonomic systems; dynamics of nonholonomic systems, including d'Álembert principle, Euler-Lagrange equations; equations of motion of nonholonomic systems with Lagrangian multipliers; the reaction of ideal nonholonomic constraints; nonholonomic Caplygin systems; Bifurcation and stability analysis of the nonholonomic systems. Analysis and design of nonlinear control of nonholonomic systems, including kinematic control and dynamic control as well as force control. Controller designs with uncertain nonholonomic systems. Application examples including control of wheeled mobile robots and walking robots. A project is required.

Component(s):
Lecture

MECH 6691 Optical Microsystems (4 credits)

Description:
Microfabrication and micromachining required for optical microsystems; optical microsystem modelling, simulation, sensitivity analysis. Properties of materials suitable for optical MEMS (Micro-Electro-Mechanical Systems). Measurements, sensing and actuation suitable

for optical microsystems. Introduction to micro-optical components; optical waveguide-based systems. Design of different optical MEMS devices. Chemical and biochemical sensing with optical microsystems. Assembly, packaging and testing of optical MEMS devices. A project is required.

Component(s):
Lecture

MECH 6741 Mechatronics (4 credits)

Description:
Introduction to mechatronics; basic elements of mechatronic systems. Measurement systems: including principles of measurement systems; sensors and transducers; signal conditioning processes and circuits; filters and data acquisition. Actuation systems: mechanical actuation systems and electrical actuation systems. Controllers: control modes; PID controller; performance measures; introduction to digital controllers and robust control. Modelling and analysis of mechatronic systems; performance measures; frequency response; transient response analysis; stability analysis. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course MECH 474. Students who have completed MECH 474 may not take this course for credit.

MECH 6751 Vehicle Dynamics (4 credits)

Description:
This course focuses on analytical methods for analyses of ride, handling, stability and rollover dynamics of road vehicles. The course introduces mechanics of tires, and tire models for estimating traction/braking and cornering characteristics. Objective methods for assessing vehicle ride are defined and ride dynamics models of vehicles are formulated together with modeling of the passive, semi-active and active suspensions. Analytical methods are introduced for analyses of steady-state and transient handling, tripped and untripped roll dynamics, and directional response characteristics of road vehicles, including articulated vehicles. The course also introduces concepts in active safety and driver-assist technologies such as yaw moment and vehicle stability control systems. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course MECH 448. Students who have completed MECH 448 may not take this course for credit.

MECH 6761 Vehicular Internal Combustion Engines (4 credits)

Description:

This course focuses on analysis and design principles surrounding the mechanical design of vehicular engines. The specific topics covered include: basic thermodynamic cycle analysis, gas exchange and combustion engine processes, combustion chambers design, fuels and fuel supply, ignition and control systems, cooling and lubrication of engines, emissions formation and control, engine operational characteristics - matching with vehicles, enhancement of engine performance, engine testing, environmental impact of vehicular engines, hybrid systems, and new developments and new trends in internal combustion engines. Students simulate a real internal combustion engine using models of the different processes covered. Students complete a project on the design of a vehicular engine.

Component(s):

Lecture

Notes:

- This course is cross-listed with undergraduate course MECH 454. Students who have completed MECH 448 may not take this course for credit.

MECH 6771 Driverless Ground Vehicles (4 credits)

Description:

Definition and classifications; case studies of major industrial and research vehicle prototypes; applications; kinematic modelling for feedback control of a driverless vehicle as a planar rigid body; vehicle motion and its relation to steering and drive rates of its wheels; co-ordinate systems assignment; transformation matrices; condition for rolling without skidding and sliding; sensor models and sensor integrations; dead-reckoning control; global and local path planning; introduction to dynamic modelling of driverless vehicle with and without the dynamics of wheel assemblies; design of optimal controllers; introduction to adaptive neuro-morphic controller. Projects are an integral part of the course for which the following may be used: TUTSIM, FORTRAM, or C. A project on selected topics is required.

Component(s):

Lecture

Notes:

- This is a cross-listed course. Students who have taken the undergraduate equivalent version may not take this course for credit.

MECH 6781 Guided Vehicle Systems (4 credits)

Description:

Definition and classification of guided transportation systems; track characterization: alignment, gage, profile and cross-level irregularities; wheel-rail interactions: rolling contact theories, creep forces; modelling of guided vehicle components; wheelset, suspension, truck and car body configurations, suspension characteristics; performance evaluation: stability/hunting, ride quality;

introduction to advanced guided vehicles. A project on selected topics is an integral part of the course.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course MECH 444. Students who have completed MECH 444 may not take this course for credit.

MECH 6791 Aircraft Hydro-Mechanical and Fuel Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201.

Description:
This course focuses on design principles and sizing of the following aircraft systems: hydraulic system, primary and secondary flight control actuation systems, landing gear systems, and fuel system. Traditional and new technology implementations in aircraft, helicopters and other aerospace vehicles are considered. Associated standards and regulations are described. Principles of architecture development and integration, as well as engineering tools for system sizing and simulation are covered. A project is required.

Component(s):
Lecture

Notes:

- This course is cross-listed with undergraduate course MECH 471. Students who have completed MECH 471 may not take this course for credit.

MECH 6891 Aircraft Pneumatic and Electrical Power Systems (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201.

Description:
This course focuses on design principles and sizing of the following aircraft systems: electrical power system, auxiliary and emergency power systems, environmental control system, ice and rain protection system, and pneumatic power system. Traditional and new technology implementations in aircraft, helicopters and other aerospace vehicles are considered. Associated standards and regulations are described. Principles of architecture development and integration, as well as engineering tools for system sizing and simulation are covered. A project is required, including a laboratory component.

Component(s):

Lecture

Notes:

- This course is cross-listed with undergraduate course AERO 472. Students who have completed AERO 472 may not take this course for credit.

MECH 691 Topics in Mechanical Engineering I (4 credits)

Description:
Subject matter will vary from term to term and from year to year.

Component(s):
Lecture; Reading

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

MECH 692 Topics in Mechanical Engineering (1 credits)

Description:
Subject matter will vary from term to term and from year to year.

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

MECH 6941 Concurrent Engineering in Aerospace Systems (4 credits)

Description:
Introduction: objectives, definitions, impact on product development; process modelling and optimization; forming of engineering team; selection of techniques, methodology and tools; market design focus vs. quality design focus; development time management; process integration; aerospace case studies/projects, future trends.

Component(s):
Lecture

MECH 6961 Aerospace Case Study I (3 credits)

Description:

These project-based courses cover topical case studies drawn from aerospace industrial experience. They are conducted in a modular form by experienced engineers who specialize in one or more facets of this industry.They are given in collaboration with the other participating universities and may be conducted at any of the Montreal universities in the language of convenience to the instructor.

Component(s):

Lecture

Notes:

- MECH 6961 and MECH 6971 are restricted to students registered in aerospace engineering programs at Concordia or participating universities.
-

MECH 6971 Aerospace Case Study II (3 credits)

Description:

These courses cover topical case studies drawn from aerospace industrial experience. They are conducted in a modular form by experienced engineers who specialize in one or more facets of this industry. They are given in collaboration with the other participating universities and may be conducted at any of the Montreal universities in the language of convenience to the instructor.

Component(s):

Lecture

Notes:

- MECH 6961 and MECH 6971 are restricted to students registered in aerospace engineering programs at Concordia or participating universities.

MECH 7011 Dynamics of Hydraulic Control Systems (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MECH 6021; MECH 6061.

Description:
Review of hydraulic control system technology and the need for dynamic analyses. Conventional techniques for assuring good response by analysis. Power flow modelling, power bond graphs, and digital simulation techniques. Obtaining dynamic relationships and coefficients. Phenomena which can affect dynamic response. Projects on selected topics are required.

Component(s):
Lecture

MECH 7012 Applied Numerical Computing I (1 credits)

Prerequisite/Corequisite:
Undergraduate course in numerical methods or permission of the instructor.

Description:
The course defines the basic concepts of computing languages (variable assignment, language syntax, conditional statements and flow structures, functions), the best practices in scientific computing (readability and reuse, API definitions, standards and libraries, unit testing, version control and licensing), and is a practical introduction to using modern computing tools and software libraries for engineering work. Use of root-finding, ode integration, and file I/O libraries is covered. The emphasis of the course is on the practical use and application of numerical algorithms instead of on their formal definition and derivation.

Component(s):
Lecture

Notes:

- Students who have received credit for MECH 692 Applied Numerical Computing I may not take this course for credit.

MECH 7013 Applied Numerical Computing II (1 credits)

Prerequisite/Corequisite:
MECH 7012 Applied Numerical Computing I

Description:
This course covers topics related to scientific and engineering computing, including: use of libraries for optimization, modern cooperative development platforms and tools, error and sensitivity analysis of numerical models. The formulation of mathematical models stemming from engineering analysis is connected to the development of numerical models. The use of advanced, generalist simulation tools is demonstrated. The emphasis of the course is on practical applications and methods, instead of on formal derivations of algorithms and the formal prediction of error bounds.

Component(s):
Lecture

Notes:

- Students who have received credit for MECH 692 Applied Numerical Computing may not take this course for credit.

MECH 7101 Convection Heat Transfer (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ENGR 6201.

Description:
Heat transfer in laminar flow, review of the differential and integral forms of the general energy equation for boundary layer regimes; solution of the energy equation for free convection, forced convection and heat transfer in entrance regions. Heat transfer in turbulent flow; review of the energy equation for turbulent flow; momentum-heat transfer analogies; experimental results for forced convection, free convection, and combined free and forced convection. Project or term paper required.

Component(s):
Lecture

MECH 7501 Design Using Composite Materials (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MECH 6581.

Description:
General concept involving design using composite materials. Integral approach to design. Selection of materials. Selection of fabrication techniques. Computer-aided design tools. Consideration for fracture, fatigue, buckling and impact. Joining consideration. Design of tubes, beams, columns. Design of aircraft components. A project on selected topics is required.

Component(s):
Lecture

MECH 7511 Vehicle Vibration and Control (4 credits)

Description:
Dynamic modelling of ground vehicles for analysis of ride performance; ride comfort and safety criteria; modelling of human body; characterization of road inputs; modelling and design of vibration isolators: primary suspension, secondary suspension; active, semi-active and passive isolators; kinematic and dynamic analysis of suspension linkages; laboratory methods for performance evaluation of vehicle suspension systems; software packages and case studies. Projects on selected applications are required.

Component(s):
Lecture

MECH 7711 Handling and Stability of Road Vehicles (4 credits)

Prerequisite/Corequisite:

The following course must be completed previously: MECH 6751 or equivalent.

Description:

Mathematical methods in vehicle dynamics; tire and suspension modelling and design for handling; static roll; steady turning and off-tracking analysis of straight and articulated road vehicles; directional stability and braking analysis; directional response of articulated vehicles with steerable axles; software packages and case studies. Project on selected topics is an integral part of the course.

Component(s):

Lecture

MECH 791 Topics in Mechanical Engineering II (4 credits)

Component(s):

Lecture

Notes:

- Students may re-register for this course, providing that the course content has changed. Changes in content will be indicated by changes to the course title in the graduate class schedule.

John Molson School of Business Courses

- Business Administration Graduate Certificate, Business Administration Graduate Diploma and Quantitative Business Studies Graduate Diploma Courses
- Entrepreneurship Graduate Certificate Courses
- Chartered Professional Accountancy Gradate Diploma Courses
- Executive MBA Courses
- Investment Management Courses (Graduate Diploma, MBA and MIM)
- MSc Finance, Management, Marketing, and Business Analytics and Technology Management (MSCA) Courses
- MBA Courses
- Supply Chain Management (MSCM) Seminars

Business Administration PhD Courses

Business Administration Graduate Certificate, Business Administration Graduate Diploma and Quantitative Business Studies Graduate Diploma Courses

GDBA 530 Business Data Analytics (3 credits)

Description:

This course provides students with the skills and knowledge needed to analyze business data. Using spreadsheet software throughout the course, students learn to summarize and describe data with charts, graphs and numbers, to visualize and measure relationships in data and acquire the ability to make inferences and predictions. Students acquire a working knowledge of the statistical tools and techniques required for better decision making. The course combines lecturing with actual business applications and class discussions aimed at encouraging critical thinking, analytical skills and ethical manipulation and reporting of data.

Component(s):

Lecture; Tutorial

Notes:

- Students who have successfully completed a statistics course in a previous program with a minimum grade of “B” may be exempt from taking GDBA 530 with the permission of the Program Director. In this case, the course must be substituted with an elective.
- Students who have received credit for GDBA 502 may not take this course for credit.

GDBA 531 Professional Business Skills (3 credits)

Description:

This course provides students with the necessary skills that help with successful interaction with others in business settings. Topics include designing and delivering effective written and oral messages from concept to delivery, working in groups, and negotiating and resolving conflict by using ethical communication tactics. Pedagogical methods include group-based work, in-class workshops, case studies, presentations and report writing.

Component(s):

Lecture

GDBA 532 Accounting (3 credits)

Description:

This course surveys financial and managerial accounting from the point of view of the users of financial information. Financial accounting topics include the framework of financial accounting, the analysis of transactions, and the preparation and analysis of financial statements. Topics in management accounting are budgeting and control, costing and cost allocation, the cost-volume-profit planning model, and short-term and long-term decision making in business. The ethical dimensions of accounting are explored throughout the course. Pedagogical methods include lectures, exercises, case studies and class discussions.

Component(s):
Lecture; Tutorial

Notes:

- Students who have received credit for GDBA 501 may not take this course for credit.

GDBA 533 Managing People in Organizations (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: GDBA 531.

Description:
This course is concerned with understanding and managing individual and group behaviour in organizations. It examines themes such as personality, motivation, emotions, leadership, ethics, and group dynamics and how they relate to the role of managers in organizations. The course covers these topics in an integrated manner so as to prepare students to become effective managers. Pedagogical methods include in-class exercises and case studies.

Component(s):
Lecture

Notes:

- Students who have received credit for GDBA 503 may not take this course for credit.

GDBA 534 Marketing Management (3 credits)

Description:
This course is designed to provide students with the necessary skills to develop a marketing plan. Topics include micro- and macro-level environmental analysis, customer behaviour, market segmentation, value generating practices and developing a complete marketing plan. Pedagogical methods include lectures, case studies and in-class presentations.

Component(s):
Lecture

GDBA 535 Finance (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: GDBA 532. The following course must be completed previously or concurrently: GDBA 530.

Description:
This course provides students with a general understanding of the fundamental concepts of finance as they apply to financial

management and investment analysis. Building on the objective of firm value maximization, students learn to describe and value risky financial securities and long-term capital projects as well as to manage the firm's short-term financial planning and decisions. Pedagogical methods include exercises, cases, simulations and class discussions.

Component(s):
Lecture

Notes:

- Students who have received credit for GDBA 505 may not take this course for credit.

GDBA 536 Operations Management (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: GDBA 530.

Description:
This course provides students with the quantitative and qualitative techniques to achieve efficient and effective utilization of scarce resources in business. Topics include planning, management and control of labour, machinery, material, money, information and time resources in manufacturing and service sectors. Recent developments in these areas are introduced within the context of manufacturing and service strategies. The course uses class discussion, case analysis and simulation to illustrate key concepts and practices in operations management. The interactions with other functional areas, such as information systems, marketing, accounting and finance are discussed through case studies.

Component(s):
Lecture

Notes:

- Students who have received credit for GDBA 506 may not take this course for credit.

GDBA 537 Managerial Economics (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: GDBA 530.

Description:
This course introduces the principles of economics. The emphasis is on the role of the decision maker who has to identify and implement profitable decisions. The course applies economic reasoning to business problems including bargaining, adverse selection, moral hazard, and incentive alignment. Pedagogical methods include exercises, cases and class discussions.

Component(s):
Lecture

Notes:

- Students who have received credit for GDBA 507 may not take this course for credit.

GDBA 538 Strategic Management (3 credits)

Prerequisite/Corequisite:
Students must have completed 12 credits including GDBA 530 and GDBA 531 prior to enrolling.

Description:
This capstone course provides students with an understanding of how firms gain and sustain competitive advantage in various business sectors. Specific topics include industry environment analysis, internal analysis of firm resources and capabilities, the analysis of business and corporate level strategies, and various strategic alternatives such as mergers and acquisitions, strategic alliances, and internationalization strategies. The course uses case analysis as the main approach to build abilities in strategic analysis and decision making.

Component(s):
Lecture

GDBA 540 Entrepreneurship (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: GDBA 534.

Description:
Students conduct a market study and develop a complete business plan, including the operational, financial and marketing plan. Topics may include: transforming an idea into a business, analyzing the market and competition, and planning operations and finances for the next three to five years. Pedagogical methods include lectures, case studies, and the development of a business plan.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under GDBA 595 may not take this course for credit.

GDBA 541 Business Law (3 credits)

Description:
Students learn the basic principles of the Quebec legal system, the various methods available to start a new business and how to select the most appropriate form of business. Students also learn basic legal notions relating to contracts, civil liability and employment law allowing them to better understand these legal principles in the context of operating a business.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under GDBA 595 may not take this course for credit.

GDBA 542 e-Marketing (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: GDBA 534.

Description:
This course introduces students to the conceptual framework and practices used in digital marketing and how they relate to overall marketing plans. Specific topics include online business models, search engine marketing, affiliate marketing, email marketing, social media marketing and web analytics as well as other important aspects of customer acquisition, conversion and retention in an online environment. Loyalty and online reputation management, which are crucial for success in an increasingly competitive online landscape, are also covered. Pedagogical methods include lectures, readings, group work, and hands-on activities.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under GDBA 595 or GDBA 593 may not take this course for credit.

GDBA 543 Project Management (3 credits)

Prerequisite/Corequisite:
Three GDBA credits must be completed previously.

Description:
The main objective of this course is to provide students with a good understanding of core concepts of project management and how these concepts can be used to align projects with the organization’s strategy. Drawing on frameworks from the Project Management Book of Knowledge (PMBOK), the course presents the general principles of project management while addressing specific examples across a wide range of projects in various industry sectors. Among others, specific topics include setting up, scheduling, monitoring, and controlling projects. Pedagogical methods include lectures, readings, activities, and a term project.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under GDBA 594 or GDBA 595 may not take this course for credit.

GDBA 590 Special Topics in Accountancy (3 credits)

Component(s):
Lecture

Notes:

- Students who have received credit for the same topic under GDBA 595 may not take this course for credit.

GDBA 591 Special Topics in Finance (3 credits)

Component(s):
Lecture

Notes:

- Students who have received credit for the same topic under GDBA 595 may not take this course for credit.

GDBA 592 Special Topics in Management (3 credits)

Component(s):
Lecture

Notes:

- Students who have received credit for the same topic under GDBA 595 may not take this course for credit.

GDBA 593 Special Topics in Marketing (3 credits)

Component(s):
Lecture

Notes:

- Students who have received credit for the same topic under GDBA 595 may not take this course for credit.

GDBA 594 Special Topics in Supply Chain and Business Technology Management (3 credits)

Component(s):
Lecture

Notes:

- Students who have received credit for the same topic under GDBA 595 may not take this course for credit.

GDBA 595 Special Topics (3 credits)

Description:

Special topics for this course are stated in the Class Schedule.

Component(s):

Lecture

Entrepreneurship Graduate Certificate Courses

Note: Admissions to the Entrepreneurship Graduate Certificate have been suspended.

GCE 511 Starting your Own Business (3 credits)

Description:
This course provides students with essential business knowledge. It covers the basic principles of self-employment and management of a micro-enterprise such as an artist-run studio, design firm, or a professional practice. Students learn how to organize and finance their new venture, set up basic accounting structures, understand tax implications, and protect their intellectual property. Pedagogical methods include lectures and case studies.

Component(s):
Lecture

GCE 512 Marketing your Own Business (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: GCE 511.

Description:
This course focuses on entrepreneurial marketing for the micro-enterprise. Students learn how to strategize, plan and implement marketing programs in both online and offline environments. They also learn how to tailor these programs to address the needs of their audiences and customers and how to align their business accordingly. Topics include opportunity identification, demand generation, value pricing, promotion, channel decisions, and developing a marketing mindset. Pedagogical methods include lectures, case studies, class discussions and the development of a marketing plan.

Component(s):
Lecture

GCE 513 Growing your Own Business (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently GCE 511.

Description:
This course adds to the knowledge acquired in GCE 511. It covers the issues that will arise as a micro-enterprise grows. Topics include strategies for achieving and sustaining growth, hiring and supervising staff, selecting software applications and protecting sensitive information. Pedagogical methods include lectures and case studies.

GCE 514 Entrepreneurship: Venture Creation (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously or concurrently: GCE 511; GCE 512, GCE 513.

Description:
This capstone course is designed to guide students in conducting a market study and developing their complete business plan including their operational and financial plans and integrating the marketing plan. Topics include: transforming their idea into a business, analyzing the market and competition, and planning operations and finances for the next three to five years. Pedagogical methods include lectures, case studies, and the development of the business plan.

Component(s):
Lecture

Notes:

- Students who have received credit for this topic under GDBA 595 may not take this course for credit.

GCE 595 Special Topics (3 credits)

Description:
Special topics for this course are stated in the Class Schedule.

Chartered Professional Accountancy Gradate Diploma Courses

Chartered Professional Accountancy Required Courses

ACCO 650 Financial Reporting in Practice (4 credits)

Description:
The objective of this course is for the student to demonstrate a high level of competency in many financial accounting and reporting issues, within alternative accounting frameworks. Students are also introduced to the integration of several other competencies, including taxation and finance which help develop the student's understanding of the implications of financial statement preparation on their users.

Component(s):
Lecture

Notes:

- Students who have taken ACCO 612 and ACCO 643 may not take this course for credit.

ACCO 651 Financial Reporting: Comprehensive Applications (4 credits)

Description:
In conjunction with ACCO 650, this course covers several additional complex issues in financial accounting and reporting, within alternative accounting frameworks. Students apply these financial accounting and reporting competencies, along with other competencies, in a case context.

Component(s):
Lecture

Notes:

- Students who have taken ACCO 613 may not take this course for credit.

ACCO 652 Business Advisory Services (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ACCO 650.

Description:
This course is designed to develop competencies in management decision making, finance, strategy and risk management. Emphasis is placed on strategy formulation, implementation and monitoring using case analysis.

Component(s):

Lecture

Notes:

- Students who have taken ACCO 631 may not take this course for credit.

ACCO 653 Information Systems and Internal Control (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ACCO 650; ACCO 651.

Description:
In conjunction with ACCO 652, this course is designed to develop skills in corporate governance with emphasis on the competencies required to build good internal control systems and to assess its impact on financial reporting.

Component(s):
Lecture

Notes:

- Students who have taken ACCO 678 may not take this course for credit.

ACCO 658 Capstone I Seminar (2 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ACCO 650; ACCO 651; ACCO 652; ACCO 653; two elective courses.

Description:
This course is designed to enhance the development of the student as a strategic thinker. The course builds on all previously acquired competencies. The content, structure and delivery of the course are designed to develop the strategic leadership capabilities of the student and ensure an integrative perspective is brought to decision making. The course combines individual and group work, in both written assignments and oral presentations.

Component(s):
Lecture

Notes:

- There is a surcharge for this course.

ACCO 659 Capstone II Examination Preparation (4 credits)

Prerequisite/Corequisite:

The following course must be completed previously: ACCO 658.

Description:
In this course, the students work individually to solve complex and highly integrative cases that simulate real-life business issues. The course draws on all competencies acquired throughout the CPA program and is designed specifically for students intending to write the CPA Canada Common Final Examination (CFE).

Component(s):
Lecture

Notes:

- There is a surcharge for this course.

Chartered Professional Accountancy Elective Courses

ACCO 654 Assurance and Professional Practice (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ACCO 650; ACCO 651; ACCO 653.

Description:
The objective of this course is to develop the competencies necessary to perform both internal audit projects and external assurance engagements. Students use cases to assess the kind of engagement required, to develop and perform procedures, and to document and report results obtained from a risk-based perspective.

Component(s):
Lecture

Notes:

- Students who have taken ACCO 635 may not take this course for credit.

ACCO 655 Taxation and Decision Making (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ACCO 650; ACCO 651.

Description:
This course is designed to develop competencies necessary to provide a broad range of taxation services and advice to individuals, corporations, partnerships and trusts, in compliance with tax laws and regulations. Students develop additional knowledge of the relationship between financial reporting decisions and taxation, as well as the role of taxation in making business and investment decisions.

Component(s):
Lecture

Notes:

- Students who have taken ACCO 643 may not take this course for credit.

ACCO 656 Performance Management (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ACCO 652; ACCO 653.

Description:
The objective of this course is to enhance the student's ability to assess and contribute to overall performance management, by developing and analyzing strategic decision making, supporting effective governance, managing and mitigating risk. It builds on skills developed primarily within the core courses.

Component(s):
Lecture

ACCO 657 Financial Strategies and Decisions (4 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: ACCO 651; ACCO 652.

Description:
In this course, students build upon finance-related material from previous courses to provide finance-related services for their organizations. To understand and communicate with other finance professionals, students identify, analyze, evaluate and recommend investment and financing strategies and make decisions, either individually or as part of a larger team.

Component(s):
Lecture

Chartered Professional Accountancy Tutorial Courses

ACCO 600 Tutorial in Financial Reporting in Practice (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ACCO 650. Permission of the program director is required.

Description:
This course is designed to enhance the competencies of students in the program who will benefit from additional exposure to the subject matter covered in ACCO 650. The objective is for the student to demonstrate a high level of competency in many financial accounting and reporting issues, within alternative accounting frameworks. Students are also introduced to the integration of several other competencies, including taxation and finance which help develop the student's understanding of the implications of financial statement preparation on their users.

Component(s):
Lecture

Notes:

- This course is evaluated on the same basis as ACCO 650, in the term the course is taken.
- Students who have taken this course topic under ACCO 650 may not take this course for credit.

ACCO 601 Tutorial in Financial Reporting: Comprehensive Applications (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ACCO 651. Permission of the program director is required.

Description:
This course is designed to enhance the competencies of students in the program who will benefit from additional exposure to the subject matter covered in ACCO 651. In conjunction with ACCO 650, this course covers several additional complex issues in financial accounting and reporting, within alternative accounting frameworks. Students apply these financial accounting and reporting competencies, along with other competencies, in a case context.

Component(s):
Lecture

Notes:

- This course is evaluated on the same basis as ACCO 651, in the term the course is taken.
- Students who have taken this course topic under ACCO 651 may not take this course for credit.

ACCO 602 Tutorial in Business Advisory Services (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ACCO 652. Permission of the program director is required.

Description:
This course is designed to enhance the competencies of students in the program who will benefit from additional exposure to the subject matter covered in ACCO 652. Students develop competencies in management decision making, finance, strategy and risk management. Emphasis is placed on strategy formulation, implementation and monitoring using case analysis.

Component(s):
Lecture

Notes:

- This course is evaluated on the same basis as ACCO 652, in the term the course was taken.
- This course is equivalent to ACCO 652. Students who have taken this course topic under ACCO 652 may not take this course

for credit.

ACCO 603 Tutorial in Information Systems and Internal Control (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ACCO 653. Permission of the program director is required.

Description:
This course is designed to enhance the competencies of students in the program who will benefit from additional exposure to the subject matter covered in ACCO 653. In conjunction with ACCO 652, this course develops skills in corporate governance with emphasis on the competencies required to build good internal control systems and to assess its impact on financial reporting.

Component(s):
Lecture

Notes:

- This course is evaluated on the same basis as ACCO 653, in the term the course is taken.
- Students who have taken this course topic under ACCO 653 may not take this course for credit.

ACCO 604 Tutorial in Assurance and Professional Practice (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ACCO 654. Permission of the program director is required.

Description:
This course is designed to enhance the competencies of students in the program who will benefit from additional exposure to the subject matter covered in ACCO 654. The objective is to develop the competencies necessary to perform both internal audit projects and external assurance engagements. Students use cases to assess the kind of engagement required, to develop and perform procedures, and to document and report results obtained from a risk-based perspective.

Component(s):
Lecture

Notes:

- This course is evaluated on the same basis as ACCO 654, in the term the course is taken.
- Students who have taken this course topic under ACCO 654 may not take this course for credit.

ACCO 605 Tutorial in Taxation and Decision Making (4 credits)

Prerequisite/Corequisite:

The following course must be completed previously: ACCO 655. Permission of the program director is required.

Description:
This course is designed to enhance the competencies of students in the program who will benefit from additional exposure to the subject matter covered in ACCO 655. Included are the competencies necessary to provide a broad range of taxation services and advice to individuals, corporations, partnerships and trusts, in compliance with tax laws and regulations. Students develop additional knowledge of the relationship between financial reporting decisions and taxation, as well as the role of taxation in making business and investment decisions.

Component(s):
Lecture

Notes:

- This course is evaluated on the same basis as ACCO 655, in the term the course is taken.
- Students who have taken this course topic under ACCO 655 may not take this course for credit.

ACCO 606 Tutorial in Performance Management (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ACCO 656. Permission of the program director is required.

Description:
This course is designed to enhance the competencies of students in the program who will benefit from additional exposure to the subject matter covered in ACCO 656. The objective is to enhance the student's ability to assess and contribute to overall performance management, by developing and analyzing strategic decision making, supporting effective governance, managing and mitigating risk. It builds on skills developed primarily within the core courses.

Component(s):
Lecture

Notes:

- This course is evaluated on the same basis as ACCO 656, in the term the course is taken.
- Students who have taken this course topic under ACCO 656 may not take this course for credit.

ACCO 607 Tutorial in Financial Strategies and Decisions (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ACCO 657. Permission of the program director is required.

Description:
This course is designed to enhance the competencies of students in the program who will benefit from additional exposure to the subject matter covered in ACCO 657. Students build upon finance-related material from previous courses to provide finance-related services for their organizations. To understand and communicate with other finance professionals, students identify, analyze, evaluate

and recommend investment and financing strategies, and make decisions, either individually or as part of a larger team.

Component(s):
Lecture

Notes:

- This course is evaluated on the same basis as ACCO 657, in the term the course is taken.
- Students who have taken this course topic under ACCO 657 may not take this course for credit.

ACCO 608 Tutorial in Capstone I Seminar (2 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ACCO 658. Permission of the program director is required.

Description:
This course is designed to enhance the competencies of students in the program who will benefit from additional exposure to the subject matter covered in ACCO 658. The objective is to develop the student as a strategic thinker and build on all previously acquired competencies. The content, structure and delivery of the course are designed to develop the strategic leadership capabilities of the student and ensure an integrative perspective is brought to decision making. The course combines individual and group work, in both written assignments and oral presentations.

Notes:

- This course is evaluated on the same basis as ACCO 658, in the term the course is taken.
- There is a surcharge for this course.
- Students who have taken this course topic under ACCO 658 may not take this course for credit.

ACCO 609 Tutorial in Capstone II Examination Preparation (4 credits)

Prerequisite/Corequisite:
The following course must be completed previously: ACCO 659. Permission of the program director is required.

Description:
This course is designed to enhance the competencies of students in the program who will benefit from additional exposure to the subject matter covered in ACCO 659. The students work individually to solve complex and highly integrative cases that simulate real-life business issues. The course draws on all competencies acquired throughout the CPA program and is designed specifically for students intending to write the CPA Canada Common Final Examination (CFE).

Component(s):
Lecture

Notes:

- This course is evaluated on the same basis as ACCO 659, in the term the course is taken.
- There is a surcharge for this course.
- Students who have taken this course topic under ACCO 659 may not take this course for credit.

Executive MBA Courses

EMBA 610 Measuring and Reporting Financial Performance (3 credits)

Description:
The focus of this course is on the use of financial statements to assess a company's performance and the creation of firm value. The objective is to understand the relation between a company's strategic decisions, business activities and its financial statements. It also examines how boards of directors and investors can gauge the effectiveness of managerial stewardship in the creation of shareholder value. The course is taught using the case method.

Component(s):
Lecture

EMBA 611 Managing Talent (3 credits)

Description:
The issues related to the management of people within organizations are the focus of the course. The course covers the broad topics of human behaviour and motivation as well as the processes that influence these in organizational contexts. Topics include human resource planning, recruiting, selection, training and development, performance management, compensation and legal frameworks for non-union and union environments. The course uses case studies, in-class exercises and exams. Students develop an understanding of the strategic partnership between the human resource function and managers allowing the company to capitalize fully on the potential of people as a source of competitive advantage.

Component(s):
Lecture

EMBA 612 Marketing Management (3 credits)

Description:
The important role of marketing is studied and the skills developed to lead this function in an organization or to interact effectively with it. Attention is given to such topics as marketing planning, strategy formulation and control, customer focus, customer value creation, positioning, branding, pricing, communications and distribution. Deploying lectures, case discussions and application-oriented readings, the requisite mindset is nurtured to facilitate marketing excellence in today's multi-faceted and dynamic external environment.

Component(s):
Lecture

EMBA 613 Capital Markets and Financial Management (3 credits)

Description:

The role of financial information in corporate management is examined. Students learn how the capital markets process and aggregate information provided by firms and governments in order to evaluate the risk and return trade-offs of business decisions. Students apply this knowledge to the evaluation of alternative investment opportunities. They learn how to identify and interpret the information needed to make profitable investment decisions.

Component(s):
Lecture

EMBA 615 Live Case Experience (1 credits)

Description:
The Live JMSB Experience, an integrative course, gives students the opportunity to use the knowledge acquired during the first term in a context that mirrors the reality of contemporary business. Students are exposed to senior managers of a Canadian company facing strategic and managerial issues. Using critical thinking, students work in teams to craft a solution for the company and present their recommendations to a panel of the senior managers and faculty members.

Component(s):
Lecture

EMBA 620 Value Creation through Business Processes (3 credits)

Description:
This course looks at how companies can improve their business processes to deliver services or build products that are valued by their customers. In today's business environment, companies are closely interconnected with global supply chains and distribution channels as well as multiple stakeholders. In this course, students learn to design, operate and improve a network of operations among various stakeholders to ensure that systems are properly managed so that the flow of material and information is fluid. Some of the topics covered include supply chain network design, service delivery improvement, sourcing, risk management and enterprise resource planning (ERP).

Component(s):
Lecture

EMBA 621 Information Technology and Digital Strategy (3 credits)

Description:
Students learn how advances in information technologies, connectivity and data analytics are transforming business models and creating new avenues for business value creation. This course provides students with a business-driven leadership perspective on information technology (IT) by leveraging digital technologies for competitive advantage. Within the context of IT and digital strategy, topics covered may include: strategic alignment of IT, the impact of disruptive technologies on business models, effective leadership of IT, governance, project portfolio management, strategic sourcing, e-commerce, data analytics, privacy and cybersecurity.

EMBA 622 Business, Government and the Economy (1.5 credits)

Description:

The course provides a non-technical introduction to government policy analysis from the perspective of the business executive. We begin with a discussion of the differences between private and public goods and the impact of external forces on different stakeholders. The role of government and business in the creation and resolution of problems created by outside influences will be evaluated. Topics discussed in class may include the nature and role of public-private partnerships, regulation as both a limitation and an opportunity and the role of government in international trade and foreign direct investment.

Component(s):

Lecture

EMBA 623 Managing in a Global Environment (3 credits)

Description:

The complexities of doing business in a global environment are studied. Major issues include supply chain management, cross-cultural management and communication, global investment and partnership, international strategy and marketing, international human resource management, ethics, law and social responsibility. A portion of this course also integrates the economic, social, cultural and business aspects of the region visited in the Global Experience course.

Component(s):

Lecture

EMBA 625 Business Opportunities and Cultural Immersion (1 credits)

Description:

This integrative course allows students to experience distinct cultures and learn to do business with them in a sustainable and responsible manner. Students have the opportunity to apply the business knowledge gained by being exposed to business practices in a specific region. The course exposes students to a culturally distinct community. It provides them with an opportunity to experience and learn about distinct economic, political, social, and cultural factors that influence business opportunities and practices.

Component(s):

Fieldwork

EMBA 630 Financial Decisions Under Uncertainty (3 credits)

Description:

Students apply recent advances in corporate finance theory to evaluate complex decisions that may have a profound effect on the future of a firm. Through the use of cases and projects, students evaluate and recommend different decisions within the constraints imposed by the ownership and governance structure of the firm. Examples include making choices on raising debt or equity, using capital for investment or to reward shareholders and whether to go public or remain private.

Component(s):
Lecture

EMBA 631 Strategic Management Accounting (3 credits)

Description:
In this course, students learn about management accounting and control systems concepts and related tools utilized in organizations to implement strategy and enhance decision-making. Students also learn to guide expected behaviours, evaluate performance, and act with professionalism and ethics.

Component(s):
Lecture

EMBA 632 Creativity and Innovation (1.5 credits)

Description:
Students are introduced to the theoretical concepts of creativity and innovation with the goal of implementing novel ideas in organizations. The purpose is to develop students' own creative abilities to solve business challenges in a more effective way. Based on lectures, case studies and experiential exercises, the course also proposes techniques needed to foster innovative processes in others.

Component(s):
Lecture

EMBA 635 EMBA (3 credits)

Description:
The goal of this integrative course is to engage students in the theory and practice of entrepreneurship and innovation in businesses. The course is built around a group project whose objective is to create a comprehensive innovative business plan for a novel stand-alone business, or a new line of business within an existing organization. This project provides students with an opportunity to identify a market opportunity. Students assess its business potential and viability, structure and financing options as well as exit strategies. Groups present their business plans to a board of potential investors.

Component(s):
Fieldwork

EMBA 640 Leadership (3 credits)

Description:
Leadership is the process of influencing and supporting others in the accomplishment of a common task. In addition to providing a critical review of key concepts, models, and theories of leadership, the course allows students to develop and apply their leadership

abilities in organizational settings, especially in the context of change. Students are engaged in practical exercises, case studies, simulations and role-playing activities. Elements of the leadership development module are integrated and leveraged within the course in order to improve students' ability to lead with purpose, inspire others and enable change.

Component(s):
Lecture

EMBA 641 Corporate Governance (1.5 credits)

Description:
Students learn the principles and practices underlying governance, the system by which organizations are directed and controlled to create value for their shareholders but also to all stakeholders involved in its value chain. Students review how an organization's governance structure allocates rights and responsibilities to make decisions among stakeholders and specifies procedures for decision making. The course focus on the actions and decisions of corporate boards of directors and on their interactions with managers and stakeholders such as investors. Particular attention is directed toward the ethical and sustainability dimensions of corporate governance.

EMBA 642 Crafting and Implementing a Winning Strategy (3 credits)

Description:
The important issues involved in developing strategy in various business sectors are the focus of the course. Students learn to formulate strategies that clearly state the growth path for companies. The course also looks at winning strategies defining how companies can compete against their rivals in specific business sectors. Students study strategy implementation and examine how functional strategies can be key instruments for business success. The course also looks at the relationship between strategy, culture and structure of the organization.

Component(s):
Lecture

EMBA 646 Applied Field Project (3.5 credits)

Description:
This capstone integrative course provides students with the opportunity to tackle a major business problem or issue of their choice, thereby allowing them to apply the knowledge and competencies acquired in the program. In teams, students develop a business project proposal focusing on a problem or issue faced by the organization they have chosen. Students are then expected to gather data and develop innovative and practical responses to the complex, cross-disciplinary issues faced by their client organization. Student teams are required to present a comprehensive set of recommendations to a panel comprised of faculty members, EMBA peers and representatives of the client organization. The key deliverable of this course is the actual set of recommendations and implementation plan designed to address the selected problem or issue.

Component(s):
Fieldwork

Investment Management Courses (Graduate Diploma, MBA and MIM)

GIIM 610 Economics (3 credits)

Description:
This course will examine the theoretical basis and investment implications of macroeconomic and microeconomic principles, including the key components of economic activity, industrial organization, macro theory and policy, international trade, and exchange rates.

Component(s):
Lecture

Notes:

- Students who have taken DIM 610, MIM 610, or IMBA 610 may not take this course for credit.

GIIM 611 Financial Statement Analysis I (3 credits)

Description:
This course will examine the fundamental financial statements and the impact of different accounting principles on those statements. The course will examine the treatment of such items as income taxes, inventories, depreciation, and leases from the perspective of the investment analyst. International differences in accounting standards will also be examined.

Component(s):
Lecture

Notes:

- Students who have taken DIM 611, MIM 611, or IMBA 611 may not take this course for credit.

GIIM 613 Asset Pricing and Portfolio Management I (1.5 credits)

Description:
This course will examine the efficient markets hypothesis and introduce the classic asset pricing models (domestic and international). The key elements of the theory and practice of the portfolio management process, including investment policy, asset allocation, and client relations will be examined in the domestic and international context.

Component(s):
Lecture

Notes:

- Students who have taken DIM 613, MIM 613, or IMBA 613 may not take this course for credit.

GIIM 614 Security Valuation in the Domestic and International Environment (3 credits)

Description:
This course will examine security (equity and fixed income) risk and valuation (for companies and industries) using alternative methodologies. The characteristics of global financial markets and the implications for security valuation will be examined. The theory and analysis of derivative securities will be introduced.

Component(s):
Lecture

Notes:

- Students who have taken DIM 614, MIM 614, or IMBA 614 may not take this course for credit.

GIIM 615 CFA® Exam Preparation Course Level I (1.5 credits)

Description:
This course will review the material needed for the Level I CFA® exam. Successful completion of this course includes passing the CFA® Level I Exam.

Component(s):
Lecture

GIIM 616 Quantitative Techniques (3 credits)

Description:
This course will examine the nature of the models used in the valuation and evaluation of investments, the theoretical and practical use of these models, comparison of classical or traditional models based on statistical analysis versus those based on more recent developments.

Component(s):
Lecture

GIIM 617 Corporate Finance (1.5 credits)

Description:
This module covers the theory and practice of corporate finance with emphasis on concepts such as cash flow, liquidity, leverage, cost of capital, project evaluation, and dividend policy.

Component(s):
Lecture

Notes:

- Students who have taken DIM 612, MIM 612, IMBA 612, DIM 617, MIM 617, or IMBA 617 may not take this course for credit.

GIIM 618 Seminar in Corporate Finance (3 credits)

Prerequisite/Corequisite:
For students enrolled in the Investment Management MIM or Investment Management Option (GIIM) MBA, the following course must be completed previously: GIIM 615 or DIM 615 or MIM 615 or IMBA 615.

Description:
This course focuses on the application of modern finance theory to corporate decisions. It examines the firm's investment and financial decisions under various economic and financial conditions. Specific topics include mergers and acquisitions, leverage buyout decisions and dividend and equity management strategies.

Component(s):
Lecture

Notes:

- Students who have taken MIM 618 or IMBA 618 may not take this course for credit.

GIIM 619 Marketing Management (3 credits)

Description:
The main goal of this course is to develop a comprehensive understanding of the strategic role of marketing within the firm and within the Canadian context. It covers all aspects of the marketing management process. This course is designed to help develop the necessary skills to analyze market opportunities, research and select target markets, design effective marketing strategies, plan marketing programs, and organize, implement and control the marketing effort. The specificities of the marketing of services and their implications in terms of marketing strategies are emphasized.

Component(s):
Lecture

GIIM 620 Financial Statement Analysis II (3 credits)

Prerequisite/Corequisite:
For students enrolled in the Investment Management MIM or Investment Management Option (GIIM) MBA, the following course must be completed previously: GIIM 615 or DIM 615 or MIM 615 or IMBA 615.

Description:
This course examines the analysis and use of financial statements and disclosures in the investment valuation process, as well as the impact of international differences and managerial choice on the financial statements.

Component(s):
Lecture

Notes:

- Students who have taken DIM 620, MIM 620, or IMBA 620 may not take this course for credit.

GIIM 621 Fixed Income Analysis (1.5 credits)

Prerequisite/Corequisite:
For students enrolled in the Investment Management MIM or Investment Management Option (GIIM) MBA, the following course must be completed previously: GIIM 615 or DIM 615 or MIM 615 or IMBA 615.

Description:
This course deals with the risk and return characteristics of debt instruments, term structure of interest rates, valuation of securities with embedded derivative securities or other unique features. The unique features of real estate and private equity investments are also covered.

Component(s):
Lecture

Notes:

- Students who have taken DIM 621, MIM 621, or IMBA 621 may not take this course for credit.

GIIM 622 Derivatives (3 credits)

Prerequisite/Corequisite:
For students enrolled in the Investment Management MIM or Investment Management Option (GIIM) MBA, the following course must be completed previously: GIIM 615, or DIM 615 or MIM 615 or IMBA 615.

Description:
This course focuses on the theory and practice of futures, swaps and option valuation.

Component(s):
Lecture

Notes:

- Students who have taken DIM 622, MIM 622, or IMBA 622 may not take this course for credit.

GIIM 623 Asset Pricing and Portfolio Management II (1.5 credits)

Prerequisite/Corequisite:
For students enrolled in the Investment Management MIM or Investment Management Option (GIIM) MBA, the following course must be completed previously: GIIM 615 or DIM 615 or MIM 615 or IMBA 615.

Component(s):
Lecture

Notes:

- Students who have taken DIM 623, MIM 623, or IMBA 623 may not take this course for credit.

GIIM 624 Analysis of Equity Investments (3 credits)

Prerequisite/Corequisite:
For students enrolled in the Investment Management MIM or Investment Management Option (GIIM) MBA, the following course must be completed previously: GIIM 615 or DIM 615 or MIM 615 or IMBA 615.

Description:
This course reviews the use of fundamental analysis and other methodologies to generate investment valuations and risk analyses. The impact of special situations on the valuation process and the valuation of equity derivative securities will be examined.

Component(s):
Lecture

Notes:

- Students who have taken DIM 624, MIM 624, or IMBA 624 may not take this course for credit.

GIIM 625 CFA® Exam Preparation Course Level II (0 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: GIIM 615, DIM 615, MIM 615 or IMBA 615. Permission of the Program is required to register for this course.

Description:
This course will review the material needed for the Level II CFA® exam.

Component(s):
Lecture

GIIM 626 Organizational Behaviour (3 credits)

Description:
This course focuses on individual and group behavior and the interactions of behavioural phenomena. Concepts such as motivation, leadership, group behaviour and managing change in organizations are examined. Students acquire an understanding of change processes and skills relating to organizational diagnosis and change.

Component(s):
Lecture

GIIM 631 Asset Allocation and Performance Measurement (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: GIIM 625, DIM 625, MIM 625 or IMBA 625.

Description:
This course will examine the estimation of expected returns and risks for asset classes and individual assets, the development of strategies for managing portfolios of domestic and foreign securities (equity, fixed income, real estate, etc.), the management of portfolio risk, and the evaluation of portfolio and manager performance.

Component(s):
Lecture

Notes:

- Students who have taken DIM 631, MIM 631, IMBA 631, DIM 632, MIM 632, or IMBA 632 may not take this course for credit.

GIIM 633 Investment Law and Ethics (3 credits)

Prerequisite/Corequisite:
For students enrolled in the Investment Management MIM or Investment Management Option (GIIM) MBA, the following course must be completed previously GIIM 625 or DIM 625 or MIM 625 or IMBA 625.

Description:
This course covers issues regarding the management of investment funds including techniques for the identification and prevention of professional misconduct, and the nature and drafting of compliance procedures. The practice of portfolio management and investment valuation are studied through the use of topical cases.

Component(s):
Lecture

Notes:

- Students who have taken DIM 633, MIM 633, or IMBA 633 may not take this course for credit.

GIIM 634 CFA® Exam Preparation Course Level III (0 credits)

Prerequisite/Corequisite:
The following course must be completed previously: GIIM 625, DIM 625, MIM 625 or IMBA 625. Permission of the Program is required to register for this course.

Description:
This course will review the material needed for the Level III CFA® exam.

Component(s):
Lecture

GIIM 636 Alternative Investments (1.5 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: GIIM 625, DIM 625, MIM 625 or IMBA 625.

Description:
This course will cover a description of investments such as hedge funds, real estate and the private equity market.

Component(s):
Lecture

Notes:

- Students who have taken DIM 621, MIM 621, IMBA 621, MIM 636, or IMBA 636 may not take this course for credit.

GIIM 637 Strategic Management (3 credits)

Description:
This course integrates the core functional disciplines of business within a strategic perspective and introduces several strategic management concepts, including industry analysis and dynamics, the organizational resource audit, strategic typologies, the role of the general manager, and the management of strategic transformations. The principal goal is to develop and enhance student ability in problem identification, environmental and organizational analysis, strategic alternative formulation, and action implementation. The pedagogy of the course is based upon comprehensive case studies that deal with strategic issues in a variety of contemporary business contexts.

Component(s):
Lecture

GIIM 653 Seminar in Investment Analysis and Management (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: GIIM 625, DIM 625, MIM 625 or IMBA 625.

Description:
This course will concentrate heavily on portfolio risk management issues. Topics such as the effect of cash drag, the use of equity and debt derivatives to manage risk and the uses and abuses of value at risk (VAR) will be explored. Other topics include equity style and its importance index funds and relevant criteria for the selection of investment managers.

Component(s):
Lecture

Notes:

- Students who have taken MIM 653 or IMBA 653 may not take this course for credit.

GIIM 654 Seminar in International Investment Analysis and Management (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: GIIM 625, DIM 625, MIM 625 or IMBA 625.

Description:
This course begins with a discussion of exchange rates and to what extent economic factors and market sentiment are important in the determination of these rates. Issues of importance that international investors face will be examined along with the benefits of international diversification. The course will conclude with the analysis of issues relevant to emerging markets and factors that would influence the construction of a portfolio that may include an emerging market component.

Component(s):
Lecture

Notes:

- Students who have taken MIM 654 or IMBA 654 may not take this course for credit.

GIIM 655 Socially Responsible and Sustainable Investment (3 credits)

Description:
The aim of this course is to provide students with a knowledge of socially responsible investment related issues that transcend the modern portfolio theory of Markowitz. Students gain an understanding of sustainable and responsible investment. They also develop the ability to uncover non-traditional risk and return drivers. Relevant case studies and a series of readings are relied upon to provide the basis for the course.

Component(s):
Lecture

GIIM 695 Special Topics in Investment Management (3 credits)

Prerequisite/Corequisite:
Permission of the Graduate Program Director is required.

Component(s):
Lecture

Notes:

- When offered, this course may substitute a GIIM required core course.

GIIM 696 Soft Skills for Tomorrow's Financial Professional (6 credits)

Prerequisite/Corequisite:
Permission of the Graduate Program Director is required.

Description:
As machine learning accelerates and investment in artificial intelligence intensifies, students who embark on a career in the investment management industry must marry their hard skills with the softer side of business. This course helps students develop the necessary skills deemed by the global business community to be essential. Topics focus on the development of interpersonal relationships, adapting to continuously changing environments, persuasive communication, innovative thinking and collaboration. The latter requires a big shift in mentality as moving away from star culture to one that recognizes collective efforts demands new ways of thinking and working.

Component(s):
Workshop

Notes:

- This course is evaluated on a pass/fail basis.
- With the approval of the Graduate Program Director, this course may substitute up to six credits of GIIM required core courses.

GIIM 697 Applied Investment Management (6 credits)

Prerequisite/Corequisite:
Permission of the Graduate Program Director is required.

Description:

The course focuses on endowing students with applied investment management skills by covering current relevant topics and critical skills needed for successful careers in capital markets. The course starts with an overview of essential skills for investment management. These include financial modelling and forecasting, writing buy-side and sellside research reports, navigating financial databases, and the essentials of client reporting. Next, the course dives into some of the emerging themes in the industry such as the rise of fintech and the evolution of fiduciary duty. The course emphasizes the increasingly prominent role of compliance and risk management divisions within financial institutions as the world deals with the implications of climate change and the cybersecurity threats. Within that context, the course focuses on the growing importance of investment stewardship and stakeholder engagement skills for both asset owners and asset managers.

Component(s):

Workshop

Notes:

- This course is evaluated on a pass/fail basis.
- With the approval of the Graduate Program Director, this course may substitute up to six credits of GIIM required core courses.

MSc Finance, Management, Marketing, and Business Analytics and Technology Management (MSCA) Courses

MSCA 602 Applied Linear Statistical Models (3 credits)

Description:

The course focuses on systematic treatments of linear statistical models for regression, analysis of variance and experimental design with special emphasis on applications in business and economics. Topics include regression analysis: inference, model building, diagnostics, remedial measures and validation; single-factor and two-factor ANOVA models, and analysis of covariance. Other statistical tools for specialized applications discussed may include logistic regression, path analysis and time series regression. Case studies are employed to illustrate tools for fitting, checking, validating and interpreting linear models.

Component(s):

Seminar

MSCA 603 Applied Data Analysis (3 credits)

Description:

The need to understand and interpret data is of increasing importance to managers, executives, and entrepreneurs. The goal of this course is to develop skills in applied data analysis for business decision making—there are questions in the world that we want answers to, so we design studies to collect and then analyze inherently noisy data to answer those questions. The emphasis is applied and computational, with mathematical concepts presented when needed. The course covers the most important statistical methods in micro-level management research: 1. Linear regression problems, 2. Generalized linear modeling, 3. Measurement, data reduction, and causal modeling, 4. Design and analysis of experiments, 5. Bayesian approaches.

Component(s):

Seminar

Notes:

- Students who have received credit for MSCA 602 may not take this course for credit.

MSCA 615 Research Methodology - Administrative Sciences (3 credits)

Description:

This seminar provides a basic understanding of the research process and a knowledge of the methods used in the design and execution of scientific research relevant to social sciences, and specifically the business context. The seminar helps students to develop skills needed to assess the feasibility and potential contribution of proposed studies, and to critically evaluate research reported by others. The application of relevant research methods is reviewed through discussions of exemplary articles published in leading journals. Cornerstone topics in this seminar include: theory construction, measurement, overview of data collection methods, reliability, as well as internal and external validity issues.

Component(s):
Seminar

Notes:

- Students who have taken MSCA 612, MSCA 613, MSCA 614 or MSCA 616 may not take this seminar for credit.

MSCA 616 Research Methodology - Management (3 credits)

Description:
This seminar provides a basic understanding of the research process and a knowledge of the methods used in the design and execution of scientific research relevant to social sciences, and specifically the business context. The seminar helps students to develop skills needed to assess the feasibility and potential contribution of proposed studies, and to critically evaluate research reported by others. The application of relevant research methods are reviewed through discussions of exemplary articles published in leading journals. Cornerstone topics in this seminar include: theory construction, measurement, overview of data collection methods, reliability, as well as internal and external validity issues.

Component(s):
Seminar

Notes:

- Students who have received credit for MSCA 615 may not take this seminar for credit.

MSCA 655 Professional Development (0 credits)

Prerequisite/Corequisite:
Permission of the Graduate Program Director is required.

Description:
Students are required to attend a minimum of three professional development workshops approved by the Graduate Program Director and offered in collaboration with different partners (e.g. GradProSkills). These workshops complement students' academic training and provide them with technical skills that help them succeed professionally and academically.

Component(s):
Workshop

Notes:

- This course is assessed on a pass/fail basis.

MSCA 662 Seminar in Qualitative Research (3 credits)

Description:
This course familiarizes students with the philosophy and method of qualitative research. It cultivates skills to develop relevant and feasible research questions and carry out tasks to tackle these questions. Beyond scholarly research, the course also covers applied uses of qualitative methods. Topics such as research ethics in qualitative methods, research project management, online data, presenting research findings, data collection aids, and multimethod inquiry are covered.

Component(s):
Seminar

Notes:

- Students who have received credit for the Seminar in Qualitative Research under MSCA 672 may not take this course for credit.

MSCA 680 Foundations of Business Technology Management (3 credits)

Description:
This course provides students with an overview of the BTM literature in a range of research areas, exposing students to classic and modern BTM literature that has been influential in the development of the field. Very early articles and more recent articles are reviewed. The main course objectives are to help students develop an understanding of the evolution of the BTM discipline and identify major research areas, including ethical issues in business technology management. The course will follow a seminar format and will focus on the discussion of assigned readings.

Component(s):
Seminar

MSCA 681 Foundations of Data Mining (3 credits)

Description:
The course covers essential ideas and techniques for analyzing and extracting information from large amounts of data. The course begins with the discussion of ethical issues in business analytics. It discusses both supervised and unsupervised methods, and covers topics such as dimension reduction, classification and regression trees, K-nearest neighbors, neural networks, association rules and collaborative filtering, cluster analysis, ensemble methods, boosting and bagging. Illustrations of the concepts and methods are given, and students gain practical experience in data mining with the use of popular data mining software.

Component(s):
Seminar

MSCA 694 Thesis Proposal (3 credits)

Description:
Students propose a selected research topic under the supervision of a thesis advisor. The written proposal outlines the thesis topic, its conceptual framework, potential contributions, proposed methodology and completion timeline.

Component(s):
Thesis Research

MSCA 695 Research Thesis (18 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MSCA 694.

Description:
The written thesis requirements include the completion of an independent research-based investigation on a topic outlined in the thesis proposal.

Component(s):
Thesis Research

MSCA 699 Research Thesis (21 credits)

Description:
The MSc thesis is intended to provide candidates with an opportunity to carry out an in-depth investigation in a particular area of interest and to make a contribution to knowledge in the area. It is expected that the thesis will include a comprehensive and critical synthesis of the relevant literature and will also embody either a theoretical contribution to knowledge, a rigorous empirical investigation or both.

Component(s):
Thesis Research

MSc Finance Seminars

Each year a selection of specialized seminars will be offered on a rotating basis from those listed below.

MSCA 601 Financial Economics (3 credits)

Description:
This course introduces the theory of financial decision making. The fundamental issue to be addressed in finance is the allocation of scarce resources between current consumption and future consumption (investment). The interesting questions will arise when one considers the valuation of risky investment opportunities. An additional objective of the seminar is to learn how to conduct and present research.

Component(s):
Seminar

MSCA 611 Research Methodology - Finance (3 credits)

Description:

This seminar studies several approaches that are used in conducting research in finance. There are three main objectives for this seminar: a) to provide guidance and experience in the design and critique of empirical research; b) to provide an introduction to the use of financial databases; and c) to provide experience in the conduct of an empirial research project. Specific topics addressed include: event study methodologies, time-series issues including unit root problems and time varying volatility estimation, as well as qualitative choice methods, performance appraisal tests, and simultaneous equation estimation.

Component(s):

Seminar

MSCA 621 Seminar in Investment Theory (3 credits)

Component(s):

Seminar

MSCA 622 Seminar in Investment Management (3 credits)

Component(s):

Seminar

MSCA 623 Seminar in Financial Theory and Corporate Policy (3 credits)

Component(s):

Seminar

MSCA 624 Seminar in Mergers, Restructuring, and Corporate Control (3 credits)

Component(s):

Seminar

MSCA 625 Seminar in Options and Futures (3 credits)

Component(s):

Seminar

MSCA 632 Seminar in Special Topics in Finance (3 credits)

Description:
More than one topic can be offered under this course. In such cases, the name of the topic will be indicated on the class schedule (under Topic e.g. Financial institutions).

Component(s):
Seminar

MSc Management Seminars

Each year a selection of specialized seminars will be offered on a rotating basis from those listed below.

MSCA 619 Community Service Consulting Project (3 credits)

Prerequisite/Corequisite:
Students must have completed 12 credits in the MSc program including MSCA 654 prior to enrolling. Written permission of the Graduate Program Director after a selection process is required.

Description:
Students provide in-depth consulting under the guidance of faculty. The Community Service Coordinator builds relationships with representatives of the host organizations, determines their specific needs, and develops a course outline to address them. Approved projects focus on providing a relevant service to the organization, experiential learning and three (3) credits for the students.

Component(s):
Fieldwork

Notes:

- Students who have received credit for the topic Community Services Initiative under an MBA 661 number may not take this course for credit.

MSCA 643 Seminar in Motivation, Evaluation and Rewards (3 credits)

Description:
This seminar is designed to help students learn about theory, research, and applications in the field of human resource management, specifically with regards to the topics of: motivation, performance evaluation, financial and non-financial rewards, and employee well-being. The impact of these activities on international human resource management is also covered. Students become familiar with the dominant approaches pertaining to these topics, and reflect on how these topics are related to one another. Students also learn about how to conduct high-quality research on these topics, and how to use research to solve organizational problems.

Component(s):

Seminar

MSCA 646 Seminar in Leadership (3 credits)

Description:
This course adopts the interactional framework of leadership, which considers that the leadership process is a function of three components: the leader, the followers, and the context. The course is structured to cover classic and emergent theories that address each of these components; though most theories focus on one of these three components, they also inform the other components in the model, either implicitly or explicitly. Implications for the practice of leadership are addressed through class discussions. An effort is made to ensure that students do not adopt a myopic view of leadership. Rather, different perspectives on the process of leadership are presented, that make radically different assumptions. Students are therefore required to identify these assumptions and develop well-articulated arguments that either support or refute these assumptions in order to develop a sophisticated view of leadership.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a MSCA 652 number may not take this course for credit.

MSCA 648 Seminar in International Management (3 credits)

Description:
This seminar is designed to introduce students to the key concepts and important areas of research related to globalization, multinational corporate strategies, and organizations and management systems in both developed and developing countries. We start with an overview of international management and multinational enterprise theories followed by a discussion on important methodological issues for doing research in an international context. The impacts of national culture and national institutions of different countries on today's global business environment are discussed as well. Specific areas such as internationalization of small and medium-sized enterprises, entry modes, international joint ventures, and management practices are covered. The seminar concludes by discussing future research trends in this field. A key goal is to articulate appropriate research questions, develop theoretical frameworks, design empirical strategies, and to write an academic paper using key components from this seminar.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a MSCA 652 number may not take this course for credit.

MSCA 650 Advanced Analytic Techniques (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MSCA 603.

Description:
This course equips students with the skills to evaluate and conduct quasiexperimental research designs in applied management settings. Topics covered include popular techniques such as multiple regression, fixed effects, difference in differences, instrumental variables, and regression discontinuity. The course has an applied orientation and will focus on discussing the basic intuition behind these methods, as well as their relative strengths and weaknesses, rather than on analyzing statistical properties of estimators. The course also gives students hands-on experience working with and analyzing “Big Data” using the statistical software package Stata. As a result, students
learn to critically evaluate and develop applied management research.

Component(s):
Seminar

MSCA 651 Seminar in Entrepreneurship across Contexts (3 credits)

Description:
This course provides an overview of the diverse manifestations of contemporary entrepreneurship research. We review and critically evaluate the study of entrepreneurship across the contexts of new venture creation, family, social, sustainable, corporate, bottom of the pyramid and others. We cross levels of analysis—from individual to family, to firm, to network, to industry—and theoretical traditions. There is a strong emphasis on critical reasoning, empirical scrutiny and theoretical development. Students develop competencies in all aspects of the entrepreneurship research process, culminating with their own independent contributions to the field through a novel research paper.

Component(s):
Seminar

Notes:

- Students who have received credit for this topic under a MSCA 652 number may not take this course for credit.

MSCA 652 Seminar in Special Topics in Management (3 credits)

Description:
More than one topic can be offered under this course. In such cases, the name of the topic will be indicated on the class schedule under Topic.

Component(s):
Seminar

MSCA 653 Advanced Topics in Strategy (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MSCA 657.
If prerequisites are not satisfied, permission of the instructor is required.

Description:

This seminar is designed to present and discuss important developments in the field of strategy and organization theory. An in-depth knowledge of key topics such as corporate social responsibility, internationalization, entrepreneurship, family business, non-market strategies, networks, and other aspects of business management are the focus. Students are expected to demonstrate mastery of relevant concepts, theories, and empirical findings in strategy. By critiquing the variety of research designs and measures used to study a given concept, and by analyzing the contexts in which recent studies have
been conducted, students acquire an ability to propose research of conceptual and practical significance.

Component(s):

Seminar

MSCA 654 Consulting (3 credits)

Description:

This course focuses on the management consulting profession and process. The course is structured around three parallel streams and provides important concepts and ideas for the tool-kit of the management consultant involved in analytical as well as change implementation projects. The first stream of the course examines the consulting process, i.e. the five phases of a consulting project from entry to termination. The second stream focuses on core consulting skills, i.e. the skills required to operate and succeed as a management consultant. These skills are essential for any type of consulting engagement, whether one works as an external or internal consultant, and whether the client in a private sector, public, or non-profit organization. The third stream is a real world consulting project that students conduct in teams with a client firm in order to apply the tools and skills discussed in class. The course concludes by reflecting on the role of internal consultants and management consulting as a career choice.

Component(s):

Seminar

MSCA 656 Individual and Group Behaviour in Organizations (3 credits)

Description:

This course provides students with a basis for understanding and critically examining how to manage individuals in an organizational context. Key concepts include aspects of organizational behaviour such as leadership, motivation, work attitudes and group dynamics. Concepts central to human resource management are also addressed—individual differences and diversity, recruitment, selection, training, organizational rewards and strategic human resource management. The course introduces the current work of scholars in these areas, with reference to the classical roots of their research.

Component(s):

Seminar

Notes:

- Students who have received credit for MSCA 640 may not take this course for credit.

MSCA 657 Organizations and Strategy (3 credits)

Description:
This course introduces students to advanced topics and current debates in entrepreneurship, strategic management and organization theories. First, it examines core theories and concepts of entrepreneurship and strategic management that enable entrepreneurs/managers to create new businesses and sustain competitive advantage for firms. Second, it explores how organizations manage change in their environment by examining organizational structure, inter-organizational relationships, and the institutional environment. This course provides students with a basis for understanding and critically examining complex organizations in contemporary society.

Component(s):
Seminar

Notes:

- Students who have received credit for MSCA 647 may not take this course for credit.

MSCA 658 Advanced Topics in Organizational Behaviour (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MSCA 656. If prerequisites are not satisfied, permission of the instructor is required.

Description:
This seminar is designed to present and discuss important developments in the field of organizational behaviour. An in-depth knowledge of key topics such as teamwork, employee health, the work-life interface, leadership, decision making, and other aspects of workplace relationships are the focus. Students are expected to demonstrate mastery of relevant concepts, theories, and empirical findings in organizational behaviour.
By critiquing the variety of research designs and measures used to study a given concept, and by analyzing the contexts in which recent studies have been conducted, students develop the ability to propose research of conceptual and practical significance.

Component(s):
Seminar

MSc Marketing Seminars

Each year a selection of specialized seminars will be offered on a rotating basis from those listed below.

MSCA 618 Research Methods (3 credits)

Description:
This course introduces students to core methods in marketing and consumer research. The course exposes students to experimental, quantitative, and qualitative research methods and motivates students to understand why and when each methodology is more suitable to use, how to conduct research based on each methodological approach, and how it is applied in marketing practice with regards to generating managerial insights and making strategic decisions. Students formulate research problems, identify appropriate method(s) for addressing research problems, design a research project, and understand how to collect and analyze data with integrity.

Component(s):

Seminar

MSCA 663 Seminar in Consumer Research Methods (3 credits)

Description:

This seminar provides in-depth understanding of research methods used in consumer research. The course improves skills to evaluate and use these methods in addressing academic and applied research questions. Factors important for decisions in research process, such as measurement, sampling, analyses, interpretation, communication, ethics, and implications for affected stakeholders are covered.

Component(s):

Seminar

Notes:

- Students who have received credit for the Seminar in Qualitative Research under MSCA 672 may not take this course for credit.

MSCA 665 Seminar in Marketing Communications (3 credits)

Description:

The seminar focuses on the communication process between a company and its markets or other publics. In particular, it looks at how specific theories and theoretical frameworks can be used to answer specific questions related to marketing communications. Selected theories, findings, hypotheses and techniques from several disciplines are studied and evaluated in the context of developing a marketing communications program. Emphasis is given to mass communications rather than to personal communications.

Component(s):

Seminar

MSCA 667 Seminar in Consumer Psychology and Decision Making (3 credits)

Description:
This course explores key theoretical frameworks of consumer psychology and behavioural decision using an interdisciplinary lens. Topics such as behavioural decision theory, hot cognition, evolutionary consumption, consumer wellbeing, and cross-cultural versus human universals in consumer behaviour are covered. Students also: 1) gain an understanding of the multitude of ways that data can be collected and analyzed when conducting consumer research; 2) Learn the theoretical, methodological, and epistemological metrics by which good science is judged, and sound scientific explanations are constructed.

Component(s):
Seminar

Notes:

- Students who have received credit for the Seminar in Qualitative Research under MSCA 672 may not take this course for credit.

MSCA 668 Seminar in Innovation and Marketing (3 credits)

Description:
This course provides an overview of the marketing literature on innovation and the marketing of innovations. The course covers topics such as the creation, diffusion, management, and marketing of innovation. Students develop academic and strategic understanding of the process of innovation, and learn how to contextualize the role of innovation in building a firm's competitive advantage, and in society more broadly.

Component(s):
Seminar

MSCA 669 Seminar in Pricing Management (3 credits)

Description:
This course focuses on pricing strategies and the literature on behavioural responses to pricing cues. It covers topics such as price presentation, different kinds of price promotion, price partitioning and bundling. The course provides students with an understanding of the issues involved in setting prices as well as the psychology underlying consumers' perceptions of price and value.

Component(s):
Seminar

Notes:

- This course is equivalent to MSCA 672 Seminar in Pricing. Students who have received credit for MSCA 672 Seminar in Pricing may not take this course for credit.

MSCA 671 Seminar in Relationship Marketing Strategy (3 credits)

Description:
This course introduces different perspectives to strategic relationship marketing. Students develop critical thinking skills about the complexities of interdisciplinary research. Topics such as design, enhancement, co-creation of service experience, service logic, service systems, and ethics are covered. Students also enhance their communication skills, and understanding of deontology practices, and the societal responsibility of teaching and researching.

Component(s):
Seminar

Notes:

- Students who have received credit for the Seminar in Relationship Marketing Strategy under MSCA 672 may not take this course for credit.

MSCA 672 Seminar in Special Topics in Marketing (3 credits)

Description:
Special topics in marketing are covered. The specific course description is made available prior to the registration period.

Component(s):
Seminar

Notes:

- Subject matter will vary from term to term and students may take more than one of these courses, provided that course content has changed.

MSCA 673 Seminar in Segmentation and Positioning Marketing (3 credits)

Description:
This course focuses on statistical models that researchers use in segmentation and positioning strategies in marketing. Students are exposed to various models (e.g., principal component analysis, factor analysis, correspondence analysis, internal and external analysis of preferences, conjoint analysis, discrete choice models and various types of cluster analysis) with hands-on data analysis through assignments.

Component(s):
Seminar

Notes:

- Students who have received credit for the Seminar in Segmentation and Positioning in Marketing may not take this course for credit.

MSCA 674 Seminar in Meaning and Management of Brands (3 credits)

Description:
This specialized MSc seminar in marketing introduces students to academic research in the domain of branding. Students develop theoretical knowledge and critical evaluation skills allowing them to pursue research, managerial, or consulting careers that touch upon brand management issues.

Component(s):
Seminar

Notes:

- Students who have received credit for the Seminar in Brand Management under MSCA 672 may not take this course for credit.

MSCA 675 Seminar in Retailing (3 credits)

Description:
This specialized M.Sc. seminar in marketing introduces students to academic research in the domain of retailing. Students develop theoretical knowledge and critical evaluation skills allowing them to pursue research, managerial, or consulting careers that touches upon retailing issues.

Component(s):
Seminar

Notes:

- Students who have received credit for the Seminar in Research in Retailing under MSCA 672 may not take this course for credit.

MSCA 677 Seminar in Sustainability in Marketing (3 credits)

Description:
This course provides an overview of marketing literature on sustainability and corporate social responsibility. The focus is on the impact of marketing decisions and consumer behaviour on consumer and public welfare and firm performance. The course covers broad societal concerns, such as environmental, social, and consumer outcomes of consumption. The course provides an overview of literature and helps students develop fundamental understanding of the research in sustainability and social responsibility in marketing.

Component(s):
Seminar

Notes:

- Students who have received credit for the Seminar in Sustainability in Marketing under MSCA 672 may not take this course for credit.

MSCA 678 Marketing Research Foundations (3 credits)

Description:
This seminar focuses on how marketing research supports complex decisions that benefit multiple stakeholders. Students gain skills to articulate real-world marketing problems into marketing research questions, identify and critically assess managerial, conceptual, and ethical implications of a marketing research project. Topics such as translating research questions to hypotheses, sampling principles, measurement, ethical guidelines in research and best practices are covered.

Component(s):
Seminar

MSCA 679 Marketing Theory (3 credits)

Description:
This course introduces students to essential theories and frameworks in significant substantive areas of marketing. As a foundational course, this course provides students with the groundwork knowledge and analytical skills that are necessary for more specialized courses. Another course objective is to introduce students to key expertise topics within the marketing department to facilitate their supervision selection. Specifically, students critically engage with areas that constitute diverse expertise within the marketing department while getting a big-picture view of the discipline.

Component(s):
Seminar

MSc Business Analytics and Technology Management Seminars

Each year a selection of specialized seminars will be offered on a rotating basis from those listed below.

MSCA 683 Applied Multivariate Data Analysis (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously or concurrently: MSCA 602 or equivalent.

Description:

The course is planned to provide students with practical knowledge of analyzing multivariate data arising in business applications and research. The multivariate methods of data analysis provide an effective approach to describe and understand structure and the relationships between variables of interest. A wide range of statistical methods most commonly used in practice is introduced. The topics covered include methods of dimensionality reduction to better visualize and understand complex data, structured approaches in studying inter-relationships between the measured variables, analysis of their dependency and various classification techniques. Extensions of the analyses of experimental designs to include multi-dimensional responses are also considered. Examples from business and other disciplines are analyzed with the extensive use of statistical software. The focus of the course is on data analysis and results interpretation rather than the mathematical theory of multivariate methods.

Component(s):

Seminar

MSCA 686 Competitive Advantage through Information Technology (3 credits)

Description:

This course investigates how organizations compete by leveraging digital technology and transformative IT strategy. The course covers topics such as strategic management of IT, digital strategy, and digital innovation and transformation. The course offers an opportunity to explore traditional and contemporary literature in IT strategy formulation and implementation. The course follows a research seminar format and includes discussion of academic as well as practitioner issues.

Component(s):

Seminar

MSCA 690 Data Management (3 credits)

Description:

This course provides a comprehensive foundation for designing, building, and working with databases, enabling students to understand and use commercially available database products effectively. The course examines different models of representing data with emphasis on the relational model. Topics include data modeling, database design, queries, transaction management, implementation issues, and an overview of distributed database management systems, data warehouses, databases in electronic commerce, database administration, and knowledge management. Examples are drawn from various functional and operational areas including enterprise and supply chain operations, management, and planning.

Component(s):

Seminar

MSCA 691 Advanced Data Mining (3 credits)

Description:

This course covers advanced data mining concepts and algorithms for analyzing and extracting information from large amounts of data. The course covers topics such as deep neural networks, text mining, social media analytics, graphical models and Bayesian

learning. In addition, the course covers advanced data visualization techniques. The course includes the discussion of theoretical concepts and analysis based on real-world data.

Component(s):
Seminar

MSCA 693 Seminar in Special Topics in Business Analytics and Technology Management (BATM) (3 credits)

Description:
More than one topic can be offered under this course. In such cases, the name of the topic will be indicated on the class schedule under Topic.

Component(s):
Seminar

Notes:

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MSCA 697 Advanced Topics in Information Systems Development (3 credits)

Description:
This course includes advanced topics in information systems design, development, and implementation. Topics include information systems development lifecycle, information systems development methodologies, information/data management, information security, and information systems deployment and implementation techniques. The course will include the discussion of theoretical concepts and analysis based on academic and practitioner literature.

Component(s):
Seminar

MBA Courses

MBA Qualifying Course

COMM 610 Basic Quantitative Skills for Administration (1.5 credits)

Description:
This course revisits and strengthens the basic algebra and statistics skills presented in MBA 640. The course uses a combination of online lectures and workshops and in person tutorials to develop and apply these skills to different business problems. Assessment is carried out via assignments and a final exam.

Notes:

- Students who have received credit for COMM 600 may not take this course for credit.
- Students who have received credit for COMM 500 may not take this course for credit.

MBA Core Courses

MBA 640 On Ramp (0 credits)

Description:
The On-Ramp covers basic quantitative tools needed to succeed in the MBA Program. The course is divided into several learning modules to review and test the essential quantitative skills needed prior to starting the program.

Component(s):
Lecture

Notes:

- At the end of the On-Ramp, students' quantitative skills are assessed via an examination evaluated on a pass/fail basis. Unsuccessful students are required to retake the test after a 5-day waiting period. Failure to successfully complete MBA 640, could delay the beginning of the MBA program.

MBA 641 Responsible Manager (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: MBA 640.

Description:
This introductory course focuses on management, organizations and society. Students reflect on who managers are and what they do, and understand how their work is vital in all the functions of the organization. Taking a multi-level approach acknowledging the individual, organizational, and societal impacts of business, this course critically explores ethical behaviour, corporate responsibility

and stakeholder engagement. Students develop a more nuanced understanding of what it means to be a responsible manager and the role of business as a vibrant and important actor in society. The pedagogical method is primarily through case analysis.

Component(s):
Lecture

Notes:

- Students are expected to complete this course in their first term.
- Students who have received credit for MBA 691 may not take this course for credit.

MBA 642 Financial Reporting for Responsible Decision Making (3 credits)

Prerequisite/Corequisite:
The following course must be completed concurrently: MBA 640.

Description:
This course provides an overview of the corporate external financial reporting system. It examines the role played by management, creditors, investors and auditors. The legal environment for enforcing accounting standards is also studied. As financial reporting helps various decision-makers allocate resources to the most profitable and socially responsible ventures, annual reports' comparability is analyzed under existing International and U.S. reporting standards. The pedagogical approach used in this course is based on lectures, case analyses and the discussion of current professional issues, such as triple bottom line accounting and the detection of accounting fraud.

Notes:

- Students who have received credit for MBA 607 may not take this course for credit.

MBA 643 Managerial Analytics (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: MBA 641.

Description:
This course emphasizes the development of analytical skills needed to work effectively in a business environment. It introduces the basics of knowledge discovery from big data, business analytics and predictive modelling for data-driven decision making and policy formation. Topics include exploratory data analysis, statistical analysis and modeling, forecasting and data visualization. Practical usages of the methodologies are demonstrated via projects and case analysis based on big data from various functional areas of business.

Component(s):
Lecture

Notes:

- Students who have received credit for MBA 608 may not take this course for credit.

MBA 644 Marketing Management (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: MBA 641.

Description:
This course focuses on the strategic role of marketing for firms by cultivating marketing management perspectives and skills. Attention is directed toward demonstrating how a manager can use information in micro and macro environments to develop marketing strategies for consumer value creation that integrate product, pricing, promotion, and distribution in order to obtain and maintain a sustainable competitive advantage. Both online and offline aspects of marketing strategies are incorporated to reflect the current environment. Through the use of lectures, case discussions and application-oriented readings, the requisite mindset is nurtured to facilitate marketing excellence in today's multi-faceted and dynamic business environment.

Component(s):
Lecture

Notes:

- Students who have received credit for MBA 610 may not take this course for credit.

MBA 645 Economics for Organizational Decision Making (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously or concurrently: MBA 641.

Description:
This course applies the principles and methodologies of economics to the analysis of the global economy and its impact on the domestic business landscape. Students learn how domestic and foreign fiscal and monetary policies influence the performance of national economies through the study of macroeconomic factors such as exchange rates, interest rates, inflation and trade barriers. By the end of the course, students have developed a framework that allows them to identify and assess the systemic risks and opportunities facing any organization. Pedagogical methods may include lectures, cases and/or projects.

Component(s):
Lecture

Notes:

- Students who have received credit for MBA 618 may not take this course for credit.

MBA 646 Financial Management (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 642.

Description:
This course develops the tools and theories necessary for sound financial and risk management decisions. The core concepts of opportunity cost, risk and return are applied to the practical problems facing financial managers in large and small enterprises. Specific topics explored in depth include the time value of money, security and option valuation, capital budgeting and cost of capital, liquidity management, corporate governance and performance evaluation. Pedagogical tools including lectures, cases/simulations, discussions and applied research are used to present and critique standard and best practices in financial decision making.

Component(s):
Lecture

Notes:

- Students who have received credit for MBA 614 may not take this course for credit.

MBA 647 Managing People in Organizations (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 641.

Description:
Managing people in today's organizations requires managers to understand the relationship of and between individual, team, and organizational goals. This course informs students about core concepts that help to explain and predict how people behave in organizations, including discussions of perception, motivation, team dynamics, conflict, stress management, leadership, and change. Students also learn the science behind selected and critical Human Resource Management practices, including how to train and develop employees, and how to evaluate their performance. Through a combination of lectures and activities (e.g. case discussions, experiential exercises, and projects), students develop the interpersonal, communication, and decision-making skills necessary to manage people effectively and ethically in a diverse and fast-paced business context.

Component(s):
Lecture

Notes:

- Students who have received credit for MBA 609 may not take this course for credit.

MBA 648 Business Process Management (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 641.

Description:
Business Process Management plays a central role in achieving competitive advantage in terms of quality, price, customer services

and product variety. The focus is on improving the performance of core operations by optimally allocating scarce resources. Managerial and analytical tools are studied in improving business processes. The course covers operational issues such as demand management, resource planning, inventory management and quality management. Through case discussion, analysis and spreadsheet modelling, this course provides a hands-on approach to operations management.

Component(s):
Lecture

Notes:

- Students who have received credit for MBA 616 may not take this course for credit.

MBA 649 Strategic Managerial Accounting and Control (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 641; MBA 642.

Description:
This course focuses on the analytical techniques deployed to assist management in the design, implementation, and monitoring of the organization's strategy. It also covers techniques, which support the ensuing corrective decision-making. Topics covered include planning, capital budgeting, master budget, break-even point, differential analysis, product costing, etc. For management control: decentralization systems, transfer pricing, flexible budgets, standard costs and variance analysis, etc. The course uses the case method in both for-profit and not-for-profit organizations.

Component(s):
Lecture

Notes:

- Students who have received credit for MBA 628 may not take this course for credit.

MBA 650 Crafting and Implementing Successful Strategies (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 641; MBA 644; MBA 645; MBA 646.

Description:
The important issues involved in developing strategy in various business sectors are the focus of the course. Students learn to formulate strategies that clearly state the successful and sustainable path for companies. The course also looks at winning strategies defining how companies can compete against their rivals and cooperate with partners in specific business sectors. Students study strategy implementation and examine how functional strategies can be key instruments for business success. The course also looks at the relationship between strategy, culture and structure of the organization. Pedagogical methods focus primarily on cases and projects.

Component(s):
Lecture

Notes:

- Students who have received credit for MBA 622 may not take this course for credit.

MBA Elective Courses

MBA 651 MBA Research Paper (6 credits)

Prerequisite/Corequisite:
Written permission of the Graduate Program Director is required.

Description:
Under the guidance of the supervising professor, the purpose of the MBA research project is to involve the student in a substantial learning experience in research related to business practice. It provides an opportunity to study in-depth a business problem of personal interest to the student and to the business administration. The research project is expected to fall within the confines of one or a combination of the following three broad categories: 1) collection and analysis of data to test a hypothesis, 2) development of an original theoretical model or an original synthesis of existing research on a particular issue or 3) an original case history. In all cases, a specific problem should be addressed, and conclusions and/or recommendations should be drawn regarding that problem.

Component(s):
Research

MBA 654 MBA Reading Course (3 credits)

Prerequisite/Corequisite:
Written permission of the Graduate Program Director is required.

Description:
Students undertake research reading or field projects permitting independent study under the guidance of a faculty member. The reading course is for students who wish to explore a specific topic, issue or question in greater depth. The student in consultation with the supervising professor will negotiate the parameters of the study, the prescribed readings and the assessment process.

Component(s):
Reading

MBA 655 International Case Competition Organizer (6 credits)

Prerequisite/Corequisite:
Written permission of the Graduate Program Director after a selection process is required.

Description:
Five students are selected to organize and run the yearly John Molson MBA International Case Competition. Each member is responsible for predetermined tasks, for example, sponsorships, marketing, schools and volunteers, logistics, judges and events. The

event requires nearly one year of planning whereby student organizers have the support of an academic advisor and an advisory board composed of CEOs, presidents, chairmen and vice-presidents of major multinational corporations.

Component(s):
Practicum/Internship/Work Term

MBA 656 MBA Case Competition Organizing Committee (3 credits)

Prerequisite/Corequisite:
Written permission of the Graduate Program Director after a selection process is required.

Description:
The MBA Case Competition Organizing Committee (MBACCC), supervised by the MBA Faculty Advisor to Case Competitions, is a student-run organization that provides the leadership and development of Case Competition preparation and participation. Students selected for the MBACCC will plan the competition events for the academic year and be responsible for developing a strategic plan to build and foster a competitive culture within the MBA Program. The MBACCC is responsible for the development of educational workshops, marketing of club activities, logistics for team participation at competitions, financial and budgetary activities and hosting of internal events. In addition, students will be responsible for the hand-over of knowledge, contacts, and materials to the next cohort of students.

Component(s):
Practicum/Internship/Work Term

MBA 657 International Case Competition – Executive Assistant (3 credits)

Prerequisite/Corequisite:
Written permission of the Graduate Program Director after a selection process is required.

Description:
This course is available to four students per year who serve as special assistants to the MBA International Case Competition organizers. Their responsibilities are to help the organizers in well-defined roles. Each member is responsible for predetermined tasks: volunteers, logistics, judges, and sustainability.

Component(s):
Practicum/Internship/Work Term

MBA 658 Van Berkom Case Competition - Executive Assistant (3 credits)

Prerequisite/Corequisite:
Written permission of the Graduate Program Director after a selection process is required.

Description:
This course is available to two students per year who serve as special assistants to the Van Berkom Small-Cap Case Competition organizers. Their responsibilities are to help the organizers in well-defined roles. Each member is responsible for predetermined tasks,

for example, sponsorships, technology and schools. The event requires around nine months of planning and is overseen by the director of the Van Berkom Small-Cap Case Competition.

Component(s):
Practicum/Internship/Work Term

MBA 659 Strategies in Action (Case competition) (3 credits)

Prerequisite/Corequisite:
Written permission of the Graduate Program Director after a selection process is required.

Description:
This course focuses on strategic implementation and the integration of topics from the core courses within the program. Class exercises are designed to help students integrate and apply their complete education and past experiences to a variety of business situations. Through intensive case analysis and presentations, students will learn to apply theoretical and practical ideas to real situations in a pressured environment. The course will develop analytic, presentation, and social interaction skills to prepare students for today's business environment. In addition, the try-out for the course is used to select participants to represent the John Molson School of Business at various MBA Case Competitions. The goal is to select and prepare teams that will represent Concordia University with excellence and integrity.

Component(s):
Lecture

Notes:

- Students who have received credit for MANA 691 may not take this course for credit.

MBA 660 Small Business Consulting Bureau (3 credits)

Prerequisite/Corequisite:
The following courses must be completed concurrently: MANA 683. Written permission of the Graduate Program Director after a selection process is required.

Description:
The Concordia Small Business Consulting Bureau provides professional consulting services to start-ups and small businesses at competitive rates. Students selected for the Small Business Consulting Bureau provide ad-hoc consulting services to entrepreneurs looking to launch a new business, or business owners wanting to grow their current business or requiring specific strategy or business advice. In addition to earning credit, students also receive compensation as a percentage of the revenues generated by the projects executed. Students must be available for a period of 12 months and are expected to dedicate at least 15 hours per week to the Bureau.

Component(s):
Practicum/Internship/Work Term

Notes:

- Students who have received credit for the topic Small Business Consulting Bureau under an MBA 695 number may not take this course for credit.

MBA 661 Community Services Initiative (3 credits)

Prerequisite/Corequisite:
Students must have completed 24 credits in the MBA program prior to enrolling. Written permission of the Graduate Program Director after a selection process is required.

Description:
Students provide in-depth consulting for credit under the guidance of faculty. The Coordinator of the Community Service Initiative (CSI) builds relationships with representatives of the host organizations, determines their specific needs and develops a course outline to address them. Approved projects focus on providing a relevant service to the organization and experiential learning and credit for the students.

Component(s):
Practicum/Internship/Work Term

Notes:

- Students who have received credit for the topic JMSB/MBA Community Services Initiative under an MBA 695 number may not take this course for credit.

MBA 662 Surgical Innovation II (3 credits)

Prerequisite/Corequisite:
Written permission of the Graduate Program Director after a selection process is required.

Description:
Experimental Surgery is the process of surgical innovation and acquisition of hands-on skills necessary to work within a multidisciplinary team in the creation of a novel, needs- driven, and marketable prototype used in the care of the surgical patient. This is the second of two courses on Surgical Innovation introducing concepts and performing needs analyses right through to exploring the entrepreneurial skills needed to launch a start-up company. In this course, students work in teams and are expected to create a prototype of the solution as determined in the first course, establish and validate the value proposition, and present the prototype and business model.

Component(s):
Practicum/Internship/Work Term

Notes:

- Surgical Innovation I is offered by McGill University. Students who have received credit for MBA 652 may not take this course for credit.

MBA 663 District 3 Startup Consulting (0 credits)

Prerequisite/Corequisite:
The following course must be completed previously or concurrently: MBA 683. Enrolment in a program offered by the John Molson School of Business MBA is required. Written permission of the Graduate Program Director after a selection process is required.

Description:
The District 3 Startup Consulting course is a non-credit experiential learning opportunity. Students provide ad-hoc consulting services to startup entrepreneurs in the District 3 incubator. During the term, students attend a four-module workshop on client and mandate identification, data collection, project development, and project closure. Under the supervision of a District 3 Coordinator, consulting services may include feasibility studies, market analysis, writing business plans, financial analysis and projection models, strategy development, and writing funding applications and sponsorship proposals.

Component(s):
Practicum/Internship/Work Term

Notes:

- Students are evaluated on a pass/fail basis.

MBA 695 Seminar in Special Topics (3 credits)

Component(s):
Lecture

Notes:

- The subject matter for this course will vary from term to term and students may take more than one of these courses, provided that course content has changed.

MBA Electives: Accountancy

ACCO 691 Business Valuations (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 642.

Description:
This course provides participants with the tools and methods that allow them to translate a firm's financial situation as well as its strategic objectives into financial projections that serve as inputs to a business valuation model. To achieve that end, the course revolves around two key pivots. First, the fundamentals of financial statement analysis are presented and discussed. Following a review of critical financial reporting principles, the course then focuses on how to assess a firm's underlying financial situation through an analysis of its financial statements. In that context, a mapping of a firm's strategic position, its key success factors and its financial

statements is developed. Second, based on such financial and strategic diagnostics, the preparation of financial projections to be used as inputs into valuation models is discussed and illustrated. Alternative valuation models are then reviewed and analyzed. The course relies on a practical case-based approach that emphasizes the different contexts in which business valuation is required or applied.

Component(s):
Lecture

ACCO 692 Managing After-Tax Returns (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 642.

Description:
This course examines the effect of the Canadian Federal Income Tax Regulations on decision-making and financial planning for both corporations and individuals. Since every management decision has a tax impact, and cash flow exists only on an after-tax basis, every responsible manager should have a general understanding of taxation issues. Through real-life examples, experiential learning, class discussions and case analysis, students make decisions and discuss the tax impact on cash flows. Students also gain practical experience in the taxation issues affecting domestic and foreign expansion and use computer-based application software to prepare and analyze tax data.

Component(s):
Lecture

Notes:

- Students who have received credit for the topic Tax Planning and Decision Making for Managers under an ACCO 695 number may not take this course for credit.

ACCO 695 Seminar in Special Topics (3 credits)

Component(s):
Lecture

Notes:

- The subject matter for this course will vary from term to term and students may take this course more than once for credit, provided that course content has changed.

MBA Electives: Supply Chain and Business Technology Management

BSTA 645 Statistic Software for Data Management and Analysis (3 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: MBA 643.

Description:

This course presents the principles and techniques of widely used statistical software systems, such as SAS, for data management (information storage and retrieval), data modification, file handling, and statistical analysis and reporting. The course covers special features such as graphics, macro languages, software and/or library interfacing and the basics of data mining. Classes are held in computer labs, and half of the time is devoted to lab work.

Notes:

- Students who have received credit for the topic Statistical Software for Data Management and Analysis under a DESC 695 number may not take this course for credit.

BSTA 677 Business Forecasting (3 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: MBA 643.

Description:

Reliable managerial forecasts of business variables must often be obtained against a background of structural changes in markets. This course focuses on the theory and applications of the most widely used methods of forecasting including decomposition methods, exponential smoothing, and the Box-Jenkins (ARIMA Building) techniques for non-seasonal and seasonal modelling. Recent approaches in forecasting such as artificial neural networks are also introduced. Business and economic databases are analyzed using statistical software packages in both class and project assignments.

Component(s):

Lecture

Notes:

- Students who have received credit for DESC 677 may not take this course for credit.

BSTA 678 Data Mining Techniques (3 credits)

Prerequisite/Corequisite:

The following courses must be completed previously: MBA 643.

Description:

The course covers essential ideas and techniques for extracting information from large amounts of data. It discusses both supervised and unsupervised methods and covers topics such as dimension reduction, multiple regression, logistic regression, discriminant analysis, classification and regression trees, neural networks, association rules, cluster analysis and multi-dimensional scaling. Illustrations of the concepts and methods are given, and students gain practical experience in data mining with the use of popular data mining software.

Component(s):

Lecture

Notes:

- Students who have received credit for the topic Data Mining Techniques under a DESC 695 number may not take BSTA 678 for credit.

BSTA 679 Statistical Models for Data Analysis (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 643.

Description:
This course introduces and examines the role of contemporary statistical methods in improving business and industrial processes. The methodologies selected for discussion represent those that are most extensively used in contemporary business studies and analyses. The topics covered include modern statistical thinking, linear regression analysis, logistic regression, and experimental methods in product and process designs. The course involves mostly analyses of real-life data using statistical software packages. The understanding of the rationale of the methodologies introduced is also emphasized.

Component(s):
Lecture

Notes:

- Students who have received credit for the topic Statistical Models for Data Analysis under BTM 695 may not take this course for credit.

BSTA 695 Seminar in Special Topics (3 credits)

Notes:

- The subject matter for this course varies from term to term. Students may take this course more than once, provided that the course content has changed.

BTM 633 Strategic Management of Information Technology (3 credits)

Prerequisite/Corequisite:
Students must have completed 6 credits in their degree program prior to enrolling.

Description:
Students critically evaluate IT and business problems with a focus on strategic management of IT for competitive advantage. Using case studies, students are provided with real-world situations where they must make and explain business decisions in the context of IT governance and alignment. Topics covered include, among others: emerging technologies, digital transformation, enterprise architecture, security and risk management, etc. Pedagogical methods include lectures, case studies, presentations, and an IT

strategy report.

Component(s):
Lecture

Notes:

- Students who have received credit for MBA 615 may not take this course for credit.

BTM 660 Project Management (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 643.

Description:
This course introduces the students to the principles and methods of project management. Students use popular project management software tools, such as Microsoft Project and ProjectLibre to work on their projects. Topics covered include, among others: project activity planning, risk management, budgeting, scheduling, resource allocation, and monitoring, with an emphasis on Information Technology projects.

Component(s):
Lecture

Notes:

- Students who have received credit for DESC 660 may not take this course for credit.

BTM 695 Seminar in Special Topics (3 credits)

Component(s):
Lecture

Notes:

- The subject matter for this course will vary from term to term and students may take this course more than once, provided that the content has changed.

SCOM 610 Supply Chain Management (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 648.

Description:

This course provides an overall perspective of various functions that exist within supply chains with an emphasis on macro processes, drivers, and performance indicators along a supply chain. Coordination issues among supply chain stakeholders are detailed. Production/service planning and control issues in managing supply chains are also covered. Mathematical modelling is emphasized in dealing with facility location, capacity planning, demand and supply management, aggregate planning, scheduling, and inventory decisions. Supplier evaluation/development practices and outsourcing are also studied. Relevant enterprise resource planning modules with advanced planning and scheduling functionalities are introduced to illustrate the integration and coordination issues in supply chain planning and control.

Component(s):
Lecture

Notes:

- Students who have received credit for the topic Supply Chain Management under a DESC 695 number may not take this course for credit.

SCOM 695 695 Seminar in Special Topics (3 credits)

Component(s):
Lecture

Notes:

- The subject matter varies from term to term. Students may take this course more than once, provided that the course content has changed.

MBA Electives: Finance

FINA 663 Corporate Finance (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 646.

Description:
The objective of this course is to introduce students to recent advances in corporate finance. Topics covered include principal-agent conflicts, information asymmetry, moral hazard and adverse selection and their application to managerial decision-making under uncertainty. The course examines capital structure choice, mergers and acquisitions, financing choices, corporate governance, and payout policy. The application of these concepts is explored using Microsoft Excel and statistics.

Component(s):
Lecture

FINA 664 Private Equity (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 646.

Description:
This course provides an overview of the world of private equity. Students examine the role of private equity investments in investment portfolios and the overall contribution of the private equity asset class in the overall capital market. The course introduces different types of private equity investments such as venture capital, growth equity and leveraged buyouts. Students develop a technical framework to analyze and value companies, are introduced to the concept and practice of deal-making and business plan analysis and develop a sensitivity to the non-analytical aspects of investment analysis.

Component(s):
Lecture

Notes:

- Students who have received credit for the topic Venture Capital under a FINA 695 number may not take this course for credit.

FINA 665 Merger and Acquisition (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 646.

Description:
This course examines the financial aspects of mergers, acquisitions and other types of corporate restructuring strategies, such as hostile takeovers and the market for corporate control, financial re-capitalization, leveraged buyouts, management buyouts, going-private decisions etc. The objectives of this course are two-fold: first, to introduce the area of mergers and acquisitions and corporate restructuring, and secondly, to strengthen and develop the presentation and research skills necessary for the finance industry in general and investment banking in particular.

Component(s):
Lecture

Notes:

- Students who have received credit for the topic Mergers and Acquisitions under a FINA 695 number may not take this course for credit.

FINA 682 International Financial Management3 (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 645; MBA 646.

Description:
This course introduces the fundamental principles and issues related to international financial markets and their implications for firms operating in an international environment. Topics covered include foreign exchange markets, international parity conditions, foreign

exchange risk management, hedging with currency derivatives, and financing the firm in the global capital market.

Component(s):
Lecture

FINA 683 Portfolio Management (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 646.

Description:
This course covers recent theoretical and empirical developments in portfolio management, with an emphasis on investment strategy and the evaluation of investment performance. It introduces students to modern investment theory and the fundamentals of portfolio management. Specific topics covered include construction of optimal asset portfolios using techniques such as the single index model, extensions of the capital asset pricing model such as the zero-beta model, criteria for evaluation of investment performance, active versus passive portfolio management, portfolio insurance, and market efficiency.

Component(s):
Lecture

FINA 685 Options and Futures (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 646.

Description:
This course examines the markets and valuation models for options and futures contracts, and their application to hedging and the valuation of the other financial contracts. Students explore different common derivatives pricing models such as: cost-of-carry, binomial and Black-Scholes. The strengths and limitations of these different models when applied to hedging and valuation situations are examined.

Component(s):
Lecture

FINA 688 Financial Risk Management (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 646.

Description:
This course deals with the measurement and management of risks faced by corporations and financial institutions. It introduces students to the tools and techniques used in managing financial risk. The course involves a detailed examination of the various types of risks such as interest rate risk, credit risk, liquidity risk, market risk, and operational risk, and, an in-depth analysis of the tools, techniques, and Instruments that firms use to manage those risks. Students are exposed to statistical techniques, simulations, and

Excel modelling with the purpose of understanding how specific risks and the aggregate risk faced by firms are managed.

Component(s):
Lecture

Notes:

- Students who have received credit for the topic Financial Risk Management under a FINA 695 number may not take this course for credit.

FINA 690 Investment Analysis (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 646.

Description:
This course introduces financial investments and analysis from the viewpoint of both individuals and institutional investors. Conversely, it also benefits managers of publicly- listed companies to understand the drivers of security values. With an emphasis on equities and fixed-income capital markets, the course covers topics such as Alternative Investments, Behavioral Finance, and Portfolio Management.

Component(s):
Lecture

FINA 691 Real Estate Finance (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 646.

Description:
This course looks at the fundamental concepts, principles and analytical methods and tools useful for making real estate investments and real estate financial decisions. There are two primary objectives for this course. These are: to expose the students to the terms issues and topics in commercial real estate, and, to provide them with the set of skills necessary to assess any commercial real estate investment/project.

Component(s):
Lecture

FINA 695 Seminar in Special Topics (3 credits)

Component(s):
Lecture

Notes:

- The subject matter for this course will vary from term to term and students may take this course more than once, provided that the content has changed.

MBA Electives: Management

MANA 667 Corporate Governance (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously or concurrently: MBA 650.

Description:
This course is designed to instill the knowledge and key skills necessary for graduate business students to understand the fundamental principles of governance, to assess the governance practices of public companies through their disclosure documents, and to understand the legal and regulatory frameworks for the governance of modern organizations. Students also learn the importance of risk management in the role of corporate governance and how ethical and governance principles can be applied to practical situations as they arise in their work experience.

Notes:

- Students who have received credit for the topic Corporate Governance under a MANA 695 number may not take this course for credit.

MANA 668 Sustainable Business Strategy (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously or concurrently: MBA 641.

Description:
This course explores how businesses can create a competitive advantage through embracing issues of environmental and social sustainability in their core business strategies. This course focuses on developing both conceptual and applied understandings of sustainability and how firms can successfully develop and compete through sustainability-oriented action.

Component(s):
Lecture

Notes:

- Students who have received credit for the topic Sustainable Business Strategy under a MANA 695 number may not take this course for credit.

MANA 670 Management Consulting (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously or concurrently: MBA 641; MBA 647.

Description:
This course focuses on the management consulting profession and process. The course is structured around three parallel streams. The first stream of the course examines the consulting process - the five phases of a consulting project from entry to termination. The second stream focuses on core consulting skills that are required to operate and succeed as a management consultant. The third stream is a real-world consulting project that students conduct in teams with a client firm. The course concludes by reflecting on the role of consultants and management consulting as a career choice.

Component(s):
Lecture

Notes:

- Students who have received credit for the topic Introduction to Management Consulting under a MANA 695 number may not take this course for credit.

MANA 681 Global Competition and International Strategy (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously or concurrently: MBA 650.

Description:
This course focuses on globalization and the complex competitive landscape and proliferation of new business configuration that it has created for firms/organizations in today's global business environment. Students learn how multinational firms/organizations formulate and implement effective international strategies to deal with ongoing global challenges. It is organized around several themes such as global competitiveness and local responsiveness; reasons for going global; institutional pressures and global challenges; managing ethics and social responsibilities in a global context; international collaborative and entry strategies; internationalization of SMEs, international negotiation; organizational design and international HRM; and global governance and control mechanisms.

MANA 682 Human Resources Management (3 credits)

Prerequisite/Corequisite:
The following courses must be completed previously: MBA 647.

Description:
This course focuses on current issues related to the management of people within organizations. Topics include human resource planning, recruitment, selection, training and development, performance management, compensation and employee relations. Through this course, students develop an understanding of the strategic partnership between the human resource function and managers, allowing the company to capitalize fully on the potential of people as a source of competitive advantage.

Component(s):
Lecture

MANA 683 Entrepreneurship and Small Business (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: MBA 642. The following courses must be completed previously or concurrently: MBA 644, MBA 650

Description:

This course focuses on the entrepreneurial aspects of management that are required to create, develop, and sustain either a new business venture or a major project/initiative within an existing organization. Entrepreneurial activities have a global impact on individual lives, careers, and also on organizational survival and growth. Entrepreneurs introduce change and innovation into the economic and social system, forcing other individuals and organizations to adapt constantly. This course is designed to provide students with a basic understanding of this discipline, preparing them either to start or to take over a business, grow an existing business, or interact with entrepreneurs as advisors or in similar roles.

Component(s):

Lecture

MANA 684 Entrepreneurship through Acquisition (3 credits)

Description:

This course is designed to provide students with the understanding that you can buy an existing business and run it as a CEO. Running your own firm offers a different career path and career lifestyle than does working for a traditional corporation. In this course, students evaluate opportunities to acquire firms and alternative strategies to successfully acquire and manage these firms. Students also meet and learn from a variety of guest speakers, from those that have travelled down this path, as well as several professionals in accounting, financing and law.

Component(s):

Lecture

Notes:

- Students who have received credit for MANA 695 Business Ownership may not take this course for credit.

MANA 690 LIVE Case Experience (3 credits)

Description:

Building upon the MBA Program Case Competition Program, this course focuses on strategic implementation and the integration of topics from the courses within the program. Class exercises are designed to help students integrate and apply their complete education and past experiences to a variety of business situations. Through intensive case analysis and presentations, students will learn to apply theoretical and practical ideas to real situations in a pressured environment. The course will develop analytical, presentation and social interaction skills to prepare students for today's business environment. In addition, student teams will participate in a 'LIVE' project mandate for a client on the final day of the course.

Component(s):

Lecture

Notes:

- Students who have received credit for MANA 695 LIVE Case Experience may not take this course for credit.

MANA 695 Seminar in Special Topics (3 credits)

Component(s):
Lecture

Notes:

- The subject matter for this course will vary from term to term and students may take this course more than once, provided that the content has changed.

MBA Electives: Marketing

MARK 671 Consumer Behaviour (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MBA 644.

Description:
This course introduces frameworks, tools, and concepts that are relevant to the consumption of goods and services. The focus in on understanding consumer behaviour in order to develop and execute effective marketing strategies. This course examines personal, social, cultural, and psychological characteristics as well as external factors to understand how these factors impact the consumption process. The pedagogy used to achieve course objectives may include lectures, case studies, group projects, and presentations.

Component(s):
Lecture

MARK 672 Strategic Marketing (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MBA 644.

Description:
This course focuses on market analysis, marketing profitability, the establishment of marketing objectives and the development of marketing strategies as a means of building sustainable competitive advantage for the organization in different contexts. The primary objective of the course is the cultivation of effective strategic marketing planning and decision-making skills using analytical frameworks and measuring marketing and overall organizational performance. Topics covered may include: developing marketing plans; branding and managing brands as important company assets; offence-oriented and defence-oriented competitive strategies;

and the measurement of marketing profitability and financial performance. The pedagogy used to achieve course objectives may include lectures, case studies, group projects, and presentations.

Component(s):
Lecture

MARK 673 Social Media Marketing (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MBA 644.

Description:
This course focuses on the array of communication media and analytical tools available to the marketer as digital technology evolves. The nature of various social media along with their relevance and effectiveness for achieving certain communication objectives are examined. Integrating social media into the overall marketing communication plan is also studied. The primary focus of the course is how social media content is created, published, analyzed, managed, and compared. The pedagogy used to achieve course objectives may include lectures, case studies, group projects, and presentations.

Component(s):
Lecture

Notes:

- Students who have received credit for the topic Social Media Marketing under a MARK 695 number may not take this course for credit.

MARK 674 Integrated Marketing Communications (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MBA 644.

Description:
This course focuses on the development of effective marketing communications and the importance of the integration of any organization's marketing communications tools to ensure the achievement of marketing and communications objectives based on an understanding of the multi-directional characteristics of relevant communication methods. Topics covered may include the role of Integrated Marketing Communications; the shifting media landscape; identifying and prioritizing key stakeholder groups and generating conversations among them; creating effective message strategies; and effective use of copy and creative platforms. The pedagogy used to achieve course objectives may include lectures, case studies, group projects, and presentations.

Notes:

- Students who have received credit for the topic Integrated Marketing Communications under a MARK 695 number may not take this course for credit.

MARK 691 Pharmaceutical Marketing (3 credits)

Prerequisite/Corequisite:

The following course must be completed previously: MBA 644.

Description:

This course focuses on marketing and its role in the pharmaceutical industry. The objective is to provide the student with a thorough understanding of current marketing practices and critical issues in a key global industry. Conceptual frameworks and practical applications are featured, with emphasis on the unique nature of marketing and associated challenges in the industry. The pedagogy used to achieve course objectives may include lectures, case studies, a term project, issues analyses, and presentations. When appropriate, guest speakers may be invited to discuss specific issues confronting the industry.

Component(s):

Lecture

MARK 695 Seminar in Special Topics (3 credits)

Component(s):

Lecture

Notes:

- The subject matter for this course will vary from term to term and students may take this course more than once, provided that course content has changed.

Supply Chain Management (MSCM) Seminars

MSCM 681 Advanced Modelling and Optimization (3 credits)

Description:
This seminar emphasizes the theoretical and practical aspects of advanced optimization modelling techniques in supply chain planning. Among the topics covered are network optimization, non-linear programming, stochastic programming, Markov processes and application of duality in developing decomposition-based solution approaches for large linear and integer models. Use of commercial modelling platform and optimization software are an integral part of this seminar.

Component(s):
Seminar

MSCM 682 Sourcing and Global Logistics (3 credits)

Description:
This seminar covers the practices, techniques and regulations associated with sourcing and movement of materials in the global supply chains. Among the topics covered on sourcing are impact of globalization on sourcing, supplier evaluation and selection, supplier performance management, purchasing, electronic procurement, negotiations, contract law, supplier relationship management. Issues in global logistics are discussed in the second half of the seminar. Among the topics covered are distribution channels, warehousing, transportation management, reverse logistics, green logistics and sustainability, and cross-border issues in logistics. The coverage is supplemented by case studies and research articles.

Component(s):
Seminar

MSCM 683 Supply Chain Design and Coordination (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MSCM 681 or equivalent.

Description:
This seminar focuses on managerial and modelling issues in supply chain design and coordination along the supply chain. Models in facility location, distribution networks and global supply chain networks are studied. The strategic aspects of supply chain design are discussed in terms of competitive drivers. The second part of the seminar deals with coordination issues. Among the concepts and models covered in this respect are supply chain contracts, collaborative planning, forecasting and replenishment, bullwhip effect, postponement, and vendor managed inventory. Articles, case studies, optimization software and simulation game are used as part of seminar delivery.

Component(s):
Seminar

MSCM 684 Demand Management (3 credits)

Description:
The seminar presents advanced forecasting tools that assist market analysis, revenue management tools that optimize operational performance and approaches in building flexibilities to enhance manufacturing and organizational capabilities. Among the topics covered are advanced forecasting models, judgmental forecasting and adjustment, customer relationship management, consumer choice models, dynamic pricing, capacity control, network revenue management, manufacturing and organizational flexibilities. The seminar content is delivered via a combination of lectures, case analyses and research articles.

Component(s):
Seminar

MSCM 685 Supply Chain Risk Management (3 credits)

Prerequisite/Corequisite:
The following course must be completed previously: MSCM 681 or equivalent.

Description:
Strategies for managing the various risks along the supply chain are studied. Quantitative and qualitative approaches used in analyzing such risks and scenarios are covered. The seminar discusses risk identification and management, trade-offs in risk management, strategies for robustness, scenario planning, financial risks and disruption planning. The approaches used for modelling and analyzing the supply chain risks are presented through lectures, case analyses and research articles.

Component(s):
Seminar

MSCM 689 Applied Research Project (15 credits)

Prerequisite/Corequisite:
Students must have completed at least nine credits of MSCM seminars prior to enrolling.

Description:
Supervised (co-supervised) by a faculty member(s), the applied research project is carried out individually or by a group of two students, depending on the overall requirements and the extent of the project to be conducted. The project involves working on a real-life supply chain management problem provided by a company. Once the problem is defined, the students prepare an overall project management plan to tackle the problem within a given time limit. The various stages of the project involve, among others: literature review, defining data and information requirements for problem analysis, gathering data, designing the appropriate model, conducting experimental design runs and sensitivity analyses, and presenting the solution(s) with an implementation plan. The project outcome is expected to have both academic and business merit. For projects done in groups of two students, there is a significant individual evaluation component in assessing the work done by each student.

Component(s):
Thesis Research

Notes:

- Only available to students admitted before September 2021.

MSCM 699 Research Thesis (21 credits)

Description:

The MSc thesis is intended to provide candidates with an opportunity to carry out an in-depth investigation in a particular area of interest and to make a contribution to knowledge in the area. It is expected that the thesis will include a comprehensive and critical synthesis of the relevant literature and will also embody either a theoretical contribution to knowledge, a rigorous empirical investigation or both. A Thesis Committee consists of a faculty member from the department as supervisor and two other faculty members. An Examining Committee consists of the Thesis Committee and a Thesis Examination Chair appointed by the Associate Dean, Research and Research Programs in accordance with the thesis regulations specified in the relevant section of this calendar.

Component(s):

Thesis Research

MSCM 686 Supply Chain Sustainability (3 credits)

Prerequisite/Corequisite:

Students must have completed 6 credits in their program prior to enrolling.

Description:

This seminar provides a detailed overview of the field of supply chain sustainability. It focuses on the role of managerial decision-making in creating sustainable supply chains. This seminar contains the analysis of the environmental and stakeholder management tools used by supply chain managers. It includes an examination of supply chain strategies that can be used to address real-world sustainability issues. The seminar content is presented through lectures, class discussions, case analyses and research articles.

Component(s):

Seminar

Business Administration PhD Courses

Required General Courses

ADMI 871 Foundations of Business Research (3 credits)

Description:
This course provides students with the epistemological and methodological foundations needed to specialize in their own field of inquiry while being aware of existing alternative research paradigms and methodologies. First, it offers an introduction to methods of inquiry in business research and a review of its foundation. Second, it aims to provide a research framework applicable to business research by explaining the whole research process. An overview of the main research methods (quantitative and qualitative) is provided. Lastly, students are introduced to the writing and critiquing of a research paper and ethical issues related to the research process.

Component(s):
Seminar

ADMI 880 Pedagogical Methods (3 credits)

Description:
This course is for graduate students who wish to become skillful, thoughtful, and confident instructors in a university classroom. The goal is to enable them to design and deliver courses that are interesting and effective, and to help their students become engaged and inspired learners. In-class activities emphasize collaboration and idea exchange, teaching practice, and reflection.

Component(s):
Seminar

Required Specialization Courses

Accountancy

ADMI 860 Financial Reporting and Disclosure (3 credits)

Description:
This course develops students' understanding of the core themes in financial reporting and disclosure research. It adopts a broad user perspective with a focus on capital markets participants. Changes in financial reporting standards and regulations are transversal themes throughout the course. The course exposes students to a diversity of theoretical paradigms and methodological tools. It allows students to synthesize and analyze research on fundamental questions about financial reporting and disclosure so that they can identify and evaluate new research questions.

Component(s):
Seminar

ADMI 8601 Management Control Systems and Risk Management (3 credits)

Description:

The performance of an organization ultimately rests on the effectiveness of its management control systems, which ensure a successful implementation of an organization's strategy and risks assessment. Accordingly, this course provides a comprehensive review of foundational and current research in management control, offers an overview of the various theories used to investigate research questions focusing on management control and risk management, and presents and discusses the key methodologies adopted by researchers in the area. By the end of the seminar, participants have a comprehensive understanding of the multi-dimensional nature of research in the areas of management control and risk management.

Component(s):

Seminar

ADMI 8602 Emerging Topics in Accounting Research (3 credits)

Description:

In this course, students are exposed to research on emerging topics within accounting. Students explore these topics using various theoretical paradigms and methodological approaches, which jointly offer an understanding of the diversity of accounting research. By emphasizing cutting-edge topics and research methods, this course adopts a forward-looking stance with respect to accounting research so that students can better identify relevant and promising research themes.

Component(s):

Seminar

ADMI 861 Research in Auditing (3 credits)

Description:

In this course, students develop a foundation for reading, evaluating, and producing scholarly research in the domain of auditing and assurance. It provides a comprehensive review of foundational and current research in auditing, an overview of the various theories used to investigate research questions focusing on auditing, and presents and discusses the key methodologies adopted by researchers in the area. By the end of the seminar, participants have a comprehensive understanding of the multi-dimensional nature of research in the areas of auditing and are able to develop a viable research proposal on a related topic.

Component(s):

Seminar

Finance

ADMI 840 Corporate Finance (3 credits)

Description:

The course reviews several topics in corporate finance and closely related topics that are increasingly incorporated into corporate finance research. It focuses primarily on managers of real and, to lesser extent, financial assets. As such, the course deals with the recent work on the four aspects of the firm's budget equation (profitability, external financing, optimal investment and payouts); capital structure; firm focus and diversification; corporate governance, social responsibility and compensation; and the effect on other firm stakeholders and of exogenous shocks.

Component(s):
Seminar

ADMI 8401 Derivatives Pricing (3 credits)

Description:
This course provides an advanced coverage of the general theory of derivatives pricing, and an examination of special topics on option pricing and financial engineering. It covers and contrasts basic models in option pricing by two different paradigms, absence of arbitrage and absence of stochastic dominance in terms of their theoretical contributions and empirical implications. It then proceeds to cases, where the basic model fails because of violations of its fundamental assumptions of market completeness and frictionless trading. Frictionless derivatives pricing models in the presence of market incompleteness include stochastic volatility, GARCH and jump processes. The attempts to deal with the presence of market frictions such as transaction costs are also briefly covered.

Component(s):
Seminar

ADMI 8402 Asset Pricing and Investments (3 credits)

Description:
This course focuses on theoretical and empirical tools and results in asset pricing and portfolio choice. The course introduces continuous time finance and broadly covers cross-sectional and time-series models in asset pricing, consumption-based models, as well as intermediary asset pricing including the role of capital constraints. Topics covered include utility and risk aversion, portfolio choice, stochastic discount factors, equilibrium and efficiency, mean-variance analysis and spanning tests, factor models, heterogeneous beliefs, learning, rational expectations equilibria, information/strategic trading/liquidity, and tests of asset pricing models and anomalies.

Component(s):
Seminar

ADMI 8403 Research Methodology in Finance and Accounting (3 credits)

Description:
The course presents approaches used in conducting research in finance and accounting. A discussion of general problems in research is followed by a review of relevant statistical concepts, general problems of financial model building, and the linear regression model. The problems of unit roots, time series approaches for testing the stability of financial variables, and co-integration are also discussed. The issue of stochastic volatility is also considered as are other techniques such as qualitative choice methods, regime switching models, market-timing tests for performance appraisal, instrumental variables simultaneous equation estimation, generalized method of moments (GMM), quantile regression, regression discontinuities, as well as bootstrapping and Monte Carlo estimation.

Component(s):
Seminar

Management

ADMI 812 Foundations and Current Topics in Organizational Behaviour (3 credits)

Description:
This course provides students with a broad overview of the field of Organizational Behaviour (OB). It aims to help students acquire deep knowledge about diverse topics in OB by familiarizing them with foundational concepts and theories, emerging theoretical perspectives, and current empirical findings. Throughout the course, students will develop an original research idea with the goal of advancing knowledge on a specific topic in the field OB. The course format is designed to expose students to different scholarly perspectives on OB issues.

Component(s):
Seminar

ADMI 8501 Research Methods in Management: Applying Qualitative and Quantitative Research Methods (3 credits)

Description:
This course is designed to provide students with an overview of traditional and advanced methods used in the field of management. It aims to help students acquire knowledge of diverse methods, understand the relationship between theory and method, and learn how to make appropriate choices in their research. Traditional methods such as grounded theory, case study research, common regression models for diverse dependent variables, and panel data analysis are covered, as well as a selection of more advanced techniques. Throughout the course, students are exposed to different methodological approaches (both qualitative and quantitative) and will work on their own research projects.

Component(s):
Seminar

ADMI 852 Debating Strategic Management (3 credits)

Description:
This course examines and contrasts debates within Strategic Management. Readings are included from both established and emerging debates, engaging in both retrospective and forward views of strategy. Debates include divergent interpretations of scientific groundings of strategic management, foundations of strategic management, history of strategic management, resource theories, theories of competition, theories of top management team leadership and theories of the organization-external environment interface.

Component(s):
Seminar

ADMI 870 Research Methods in Management: Core and Advanced Issues in Quantitative Studies (3 credits)

Description:

This course provides students with knowledge of foundational and advanced topics related to the design of quantitative studies in management. It aims to help students acquire the skills to evaluate quantitative research and design rigorous quantitative studies. Major themes include: latent constructs and their measurement, reliability and validity in measurement, quantitative study designs, types of relations among variables, statistical significance, power, effect size, and meta-analysis. Throughout the course, students will critique published studies and learn about methodological choices they will face in their own research.

Component(s):

Seminar

Marketing

ADMI 8301 Managerial Marketing: Issues and Impacts (3 credits)

Description:

This course offers a review of relevant managerial marketing issues and their repercussions on society and stakeholders. Students will learn how to develop an innovative approach to view complex business and societal problems into potential research programs considering ethical and societal welfare and understanding the complexities of business/organizational contexts. Topics covered in this course may vary.

Component(s):

Seminar

ADMI 8302 Fundamentals of Behavioural Marketing (3 credits)

Description:

Understanding human behaviour is at the heart of the marketing function. This course examines behavioural approaches in understanding marketing phenomena rooted in several cognate disciplines (e.g., psychology, sociology, anthropology, biology, economics, neuroscience). Students will learn how to develop research programs within the broad field of behavioural marketing across many real-world contexts (e.g., consumer behaviour, advertising, branding, retailing). Topics covered in this course may vary.

Component(s):

Seminar

ADMI 8303 Research Methods in Marketing: Survey and Experimental Approaches (3 credits)

Description:

This course examines a broad range of data collection procedures and data analytic approaches used in marketing research and introduces students to the basics of empirical research, with an emphasis on survey and experimental approaches. It familiarizes

students with the core assumptions underlying methodological approaches and the inferential value of different data and analytical results and allows students to develop skills to match research questions with appropriate methodological approaches. Students will have hands-on experience with data analysis software. The course also exposes students to key tenets of research ethics and integrity relevant to each approach. Topics covered in this course may vary.

Component(s):
Seminar

ADMI 8304 Research Methods in Marketing: Qualitative and Quantitative Approaches (3 credits)

Description:
The course offers a review of quantitative models and qualitative research methods relevant to marketing research in various substantive domains. This course familiarizes students with the application and interpretation of quantitative empirical models and emphasizes their use in and implications for theory testing and managerial practice. It also introduces students to qualitative research methods and highlights their use in theory development. Topics covered in this course may vary.

Component(s):
Seminar

Supply Chain and Business Technology Management

ADMI 8201 Digital Innovations: Conceptualization and Impacts (3 credits)

Description:
This research seminar is offered in three modules. The conceptual aspects of digital innovation, digitalization, and digital transformation are covered in Module I. Module II focuses on digital entrepreneurship and innovation. Individual and societal impacts of digital technologies and innovation are discussed in Module III. The main goals of this seminar are to: i) understand the research and managerial issues related to digital innovation, digital entrepreneurship, and individual and societal impacts of new technologies and innovations, ii) review the underlying theories in different disciplines such as management information systems, strategic management, entrepreneurship, and marketing, and iii) synthesize academic articles in order to identify major research and management themes within and across topics. The integrative coverage of topics provides students in various disciplines such as management information systems, management, marketing, and finance with the necessary knowledge to conduct conceptual and empirical research on interdisciplinary topics in digital innovation.

Component(s):
Seminar

ADMI 8202 Emerging Technologies and Supply Chain Management (3 credits)

Description:
The course provides an overview of how diffusion and adoption of emerging hard and soft technologies shape modern supply chain management. Adoption of these technologies results in a shift from the traditional linear and sequential supply chain operations towards interconnected, open system supply networks. How these advances impact the tenets of modern supply chain management

are discussed in terms of operations planning, risk management, sourcing, and logistics, among others. Hybrid learning mediums involving lectures, research article presentations, cases, games and/or guest lecturers are used for course delivery.

Component(s):
Seminar

ADMI 8203 Special Topics in Supply Chain Management, Business Technology Management, and Business Analytics (3 credits)

Description:
Special topics in supply chain management, business technology management and/or business analytics are covered. The specific course description is made available prior to the registration period.

Component(s):
Seminar

ADMI 821 Artificial Intelligence for Business: Methods and Applications (3 credits)

Description:
Students in this course explore big data, artificial intelligence concepts and algorithms with a major focus on business applications. Among others, the topics covered are search methods, knowledge representation and reasoning, decision making under uncertainty, and machine learning. Through hands-on projects in different functional areas of business, students are exposed to genetic algorithms, particle swarm optimization, artificial neural networks, ensemble learning, and deep learning including performance evaluation, error reduction and empirical validation. For a managerial problem identified, students conduct a review of relevant literature and implement an intelligent system using specialized software.

Component(s):
Seminar

Professional Development Courses

ADMI 8502 Advanced Topics in Management (3 credits)

Description:
Advanced topics in Management are covered. The specific course description is made available prior to the registration period.

Component(s):
Seminar

ADMI 872 Doctoral Professional Development (0 credits)

Description:
The Faculty holds a series of workshops, events and activities that complement students' academic training and provide them with skills that help them succeed professionally and academically. The course is organized by the Faculty in anticipation both of key milestones during the PhD program and the future professional life of the doctoral candidate. Students are required to complete various activities (such as attending professional development workshops offered in collaboration with different partners, e.g.: GradProSkills, Career Management Services, academic departments) approved by the PhD Committee. This course must be completed before the thesis defense.

Component(s):
Workshop

Notes:

- The course is graded on a pass/fail basis.

ADMI 873 Teaching and Learning with the Case Method (3 credits)

Description:
This course provides future college and university instructors an overview of university teaching and learning pedagogy primarily through the lens of the case method - a dominant teaching approach used in business education. Participants will use the process of researching and writing a contemporaneous teaching case and case notes to explore broader teaching and classroom management topics including lesson planning, classroom management, assessments, etc. While the primary focus is on developing students' teaching skills, a strong secondary goal is the creation of new teaching cases and case notes for use in the classroom and potential publication.

Component(s):
Seminar

Business Administration PhD Thesis and Comprehensive Examination Courses

ADMI 890 Thesis (60 credits)

Description:
The PhD thesis typically entails a major empirical research project conducted under the direction of a thesis supervisor. The thesis is the final written report on a comprehensive research project and is the central component to completing the degree requirements. To accomplish this, all parts of the thesis must be organized and presented in a cohesive structure that follows a logical progression, and then orally presented before the Examining Committee and public audience.

Component(s):
Thesis Research

ADMI 8890 Comprehensive Examination (3 credits)

Description:

The main objective of the Comprehensive Examination is to assess the mastery of core knowledge in the field of study. A secondary objective is to assess the knowledge in the specific areas in which the thesis topic is structured. The examination takes the format of a written take-home exam and is written by the end of the second year of the program. After successful completion, the student is admitted to candidacy for the degree.

Component(s):

Thesis Research

Notes:

- The course is graded on a pass/fail basis.

ADMI 8902 Thesis Proposal (0 credits)

Description:

The thesis proposal provides the Supervisory Committee with an overview of the research project to be undertaken by the student. The written proposal outlines the thesis topic, its conceptual framework, potential contributions, ethical considerations, proposed methodology and completion timeline. The proposal is orally presented before the Supervisory Committee and public audience.

Component(s):

Thesis Research

Notes:

- The thesis proposal is assessed on a pass/fail basis.

Accountancy

ADMI 860 Financial Reporting and Disclosure (3 credits)

Description:

This course develops students' understanding of the core themes in financial reporting and disclosure research. It adopts a broad user perspective with a focus on capital markets participants. Changes in financial reporting standards and regulations are transversal themes throughout the course. The course exposes students to a diversity of theoretical paradigms and methodological tools. It allows students to synthesize and analyze research on fundamental questions about financial reporting and disclosure so that they can identify and evaluate new research questions.

Component(s):

Seminar

ADMI 8601 Management Control Systems and Risk Management (3 credits)

Description:

The performance of an organization ultimately rests on the effectiveness of its management control systems, which ensure a successful implementation of an organization's strategy and risks assessment. Accordingly, this course provides a comprehensive review of foundational and current research in management control, offers an overview of the various theories used to investigate research questions focusing on management control and risk management, and presents and discusses the key methodologies adopted by researchers in the area. By the end of the seminar, participants have a comprehensive understanding of the multi-dimensional nature of research in the areas of management control and risk management.

Component(s):

Seminar

ADMI 8602 Emerging Topics in Accounting Research (3 credits)

Description:

In this course, students are exposed to research on emerging topics within accounting. Students explore these topics using various theoretical paradigms and methodological approaches, which jointly offer an understanding of the diversity of accounting research. By emphasizing cutting-edge topics and research methods, this course adopts a forward-looking stance with respect to accounting research so that students can better identify relevant and promising research themes.

Component(s):

Seminar

ADMI 861 Research in Auditing (3 credits)

Description:

In this course, students develop a foundation for reading, evaluating, and producing scholarly research in the domain of auditing and assurance. It provides a comprehensive review of foundational and current research in auditing, an overview of the various theories used to investigate research questions focusing on auditing, and presents and discusses the key methodologies adopted by researchers in the area. By the end of the seminar, participants have a comprehensive understanding of the multi-dimensional nature of research in the areas of auditing and are able to develop a viable research proposal on a related topic.

Component(s):

Seminar

Finance

ADMI 840 Corporate Finance (3 credits)

Description:
The course reviews several topics in corporate finance and closely related topics that are increasingly incorporated into corporate finance research. It focuses primarily on managers of real and, to lesser extent, financial assets. As such, the course deals with the recent work on the four aspects of the firm's budget equation (profitability, external financing, optimal investment and payouts); capital structure; firm focus and diversification; corporate governance, social responsibility and compensation; and the effect on other firm stakeholders and of exogenous shocks.

Component(s):
Seminar

ADMI 8401 Derivatives Pricing (3 credits)

Description:
This course provides an advanced coverage of the general theory of derivatives pricing, and an examination of special topics on option pricing and financial engineering. It covers and contrasts basic models in option pricing by two different paradigms, absence of arbitrage and absence of stochastic dominance in terms of their theoretical contributions and empirical implications. It then proceeds to cases, where the basic model fails because of violations of its fundamental assumptions of market completeness and frictionless trading. Frictionless derivatives pricing models in the presence of market incompleteness include stochastic volatility, GARCH and jump processes. The attempts to deal with the presence of market frictions such as transaction costs are also briefly covered.

Component(s):
Seminar

ADMI 8402 Asset Pricing and Investments (3 credits)

Description:
This course focuses on theoretical and empirical tools and results in asset pricing and portfolio choice. The course introduces continuous time finance and broadly covers cross-sectional and time-series models in asset pricing, consumption-based models, as well as intermediary asset pricing including the role of capital constraints. Topics covered include utility and risk aversion, portfolio choice, stochastic discount factors, equilibrium and efficiency, mean-variance analysis and spanning tests, factor models, heterogeneous beliefs, learning, rational expectations equilibria, information/strategic trading/liquidity, and tests of asset pricing models and anomalies.

Component(s):
Seminar

ADMI 8403 Research Methodology in Finance and Accounting (3 credits)

Description:

The course presents approaches used in conducting research in finance and accounting. A discussion of general problems in research is followed by a review of relevant statistical concepts, general problems of financial model building, and the linear regression model. The problems of unit roots, time series approaches for testing the stability of financial variables, and co-integration are also discussed. The issue of stochastic volatility is also considered as are other techniques such as qualitative choice methods, regime switching models, market-timing tests for performance appraisal, instrumental variables simultaneous equation estimation, generalized method of moments (GMM), quantile regression, regression discontinuities, as well as bootstrapping and Monte Carlo estimation.

Component(s):

Seminar

Management

ADMI 812 Foundations and Current Topics in Organizational Behaviour (3 credits)

Description:

This course provides students with a broad overview of the field of Organizational Behaviour (OB). It aims to help students acquire deep knowledge about diverse topics in OB by familiarizing them with foundational concepts and theories, emerging theoretical perspectives, and current empirical findings. Throughout the course, students will develop an original research idea with the goal of advancing knowledge on a specific topic in the field OB. The course format is designed to expose students to different scholarly perspectives on OB issues.

Component(s):

Seminar

ADMI 8501 Research Methods in Management: Applying Qualitative and Quantitative Research Methods (3 credits)

Description:

This course is designed to provide students with an overview of traditional and advanced methods used in the field of management. It aims to help students acquire knowledge of diverse methods, understand the relationship between theory and method, and learn how to make appropriate choices in their research. Traditional methods such as grounded theory, case study research, common regression models for diverse dependent variables, and panel data analysis are covered, as well as a selection of more advanced techniques. Throughout the course, students are exposed to different methodological approaches (both qualitative and quantitative) and will work on their own research projects.

Component(s):

Seminar

ADMI 852 Debating Strategic Management (3 credits)

Description:

This course examines and contrasts debates within Strategic Management. Readings are included from both established and emerging debates, engaging in both retrospective and forward views of strategy. Debates include divergent interpretations of scientific groundings of strategic management, foundations of strategic management, history of strategic management, resource theories, theories of competition, theories of top management team leadership and theories of the organization-external environment interface.

Component(s):

Seminar

ADMI 870 Research Methods in Management: Core and Advanced Issues in Quantitative Studies (3 credits)

Description:

This course provides students with knowledge of foundational and advanced topics related to the design of quantitative studies in management. It aims to help students acquire the skills to evaluate quantitative research and design rigorous quantitative studies. Major themes include: latent constructs and their measurement, reliability and validity in measurement, quantitative study designs, types of relations among variables, statistical significance, power, effect size, and meta-analysis. Throughout the course, students will critique published studies and learn about methodological choices they will face in their own research.

Component(s):

Seminar

Marketing

ADMI 8301 Managerial Marketing: Issues and Impacts (3 credits)

Description:
This course offers a review of relevant managerial marketing issues and their repercussions on society and stakeholders. Students will learn how to develop an innovative approach to view complex business and societal problems into potential research programs considering ethical and societal welfare and understanding the complexities of business/organizational contexts. Topics covered in this course may vary.

Component(s):
Seminar

ADMI 8302 Fundamentals of Behavioural Marketing (3 credits)

Description:
Understanding human behaviour is at the heart of the marketing function. This course examines behavioural approaches in understanding marketing phenomena rooted in several cognate disciplines (e.g., psychology, sociology, anthropology, biology, economics, neuroscience). Students will learn how to develop research programs within the broad field of behavioural marketing across many real-world contexts (e.g., consumer behaviour, advertising, branding, retailing). Topics covered in this course may vary.

Component(s):
Seminar

ADMI 8303 Research Methods in Marketing: Survey and Experimental Approaches (3 credits)

Description:
This course examines a broad range of data collection procedures and data analytic approaches used in marketing research and introduces students to the basics of empirical research, with an emphasis on survey and experimental approaches. It familiarizes students with the core assumptions underlying methodological approaches and the inferential value of different data and analytical results and allows students to develop skills to match research questions with appropriate methodological approaches. Students will have hands-on experience with data analysis software. The course also exposes students to key tenets of research ethics and integrity relevant to each approach. Topics covered in this course may vary.

Component(s):
Seminar

ADMI 8304 Research Methods in Marketing: Qualitative and Quantitative Approaches (3 credits)

Description:
The course offers a review of quantitative models and qualitative research methods relevant to marketing research in various

substantive domains. This course familiarizes students with the application and interpretation of quantitative empirical models and emphasizes their use in and implications for theory testing and managerial practice. It also introduces students to qualitative research methods and highlights their use in theory development. Topics covered in this course may vary.

Component(s):

Seminar

Supply Chain and Business Technology Management

ADMI 8201 Digital Innovations: Conceptualization and Impacts (3 credits)

Description:

This research seminar is offered in three modules. The conceptual aspects of digital innovation, digitalization, and digital transformation are covered in Module I. Module II focuses on digital entrepreneurship and innovation. Individual and societal impacts of digital technologies and innovation are discussed in Module III. The main goals of this seminar are to: i) understand the research and managerial issues related to digital innovation, digital entrepreneurship, and individual and societal impacts of new technologies and innovations, ii) review the underlying theories in different disciplines such as management information systems, strategic management, entrepreneurship, and marketing, and iii) synthesize academic articles in order to identify major research and management themes within and across topics. The integrative coverage of topics provides students in various disciplines such as management information systems, management, marketing, and finance with the necessary knowledge to conduct conceptual and empirical research on interdisciplinary topics in digital innovation.

Component(s):

Seminar

ADMI 8202 Emerging Technologies and Supply Chain Management (3 credits)

Description:

The course provides an overview of how diffusion and adoption of emerging hard and soft technologies shape modern supply chain management. Adoption of these technologies results in a shift from the traditional linear and sequential supply chain operations towards interconnected, open system supply networks. How these advances impact the tenets of modern supply chain management are discussed in terms of operations planning, risk management, sourcing, and logistics, among others. Hybrid learning mediums involving lectures, research article presentations, cases, games and/or guest lecturers are used for course delivery.

Component(s):

Seminar

ADMI 8203 Special Topics in Supply Chain Management, Business Technology Management, and Business Analytics (3 credits)

Description:

Special topics in supply chain management, business technology management and/or business analytics are covered. The specific course description is made available prior to the registration period.

Component(s):

Seminar

ADMI 821 Artificial Intelligence for Business: Methods and Applications (3 credits)

Description:

Students in this course explore big data, artificial intelligence concepts and algorithms with a major focus on business applications. Among others, the topics covered are search methods, knowledge representation and reasoning, decision making under uncertainty, and machine learning. Through hands-on projects in different functional areas of business, students are exposed to genetic algorithms, particle swarm optimization, artificial neural networks, ensemble learning, and deep learning including performance evaluation, error reduction and empirical validation. For a managerial problem identified, students conduct a review of relevant literature and implement an intelligent system using specialized software.

Component(s):

Seminar

School of Graduate Studies Courses

Individualized Program (INDI) Courses

Professional Development Courses

Individualized Program (INDI) Courses

INDI 600 Master's Level Studies (6 credits)

INDI 620 Master's Level Studies (3 credits)

INDI 686 Special Topics (3 credits)

INDI 687 Master's Thesis Proposal (3 credits)

Component(s):
Thesis Research

INDI 690 Master's Research and Thesis (24 credits)

Description:
An oral thesis defence is not required for this program.

Component(s):
Thesis Research

Notes:

- Please refer to the Thesis Regulations section for further information on the master's thesis evaluation.

INDI 698 Master's Directed Research Course (3 credits)

Description:
The student conducts research in a lab or another research site under the direction of his/her principal supervisor.

Notes:

- These courses will be graded pass/fail.
- The content will vary from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content will be indicated by changes to the course title in the course schedule. a

INDI 800 Doctoral Level Studies (6 credits)

INDI 820 Doctoral Level Studies (3 credits)

INDI 885 Doctoral Comprehensive Examination (3 credits)

Description:

At the doctoral level, students are required to write an examination testing their basic knowledge of the relevant areas of each component discipline comprising their program of study. The comprehensive examination takes place after students have completed the required 18 course credits. For most students, the format will involve three written examination questions. Students who are involved in a research-creation project may include a practice-based component as one of their examination questions. The student and supervisory committee, comprised of three faculty members, meet prior to the comprehensive exam to determine the format of the exam and the evaluation mechanism, as well as to approve a reading list of approximately 20 titles per question. The student has two weeks to complete the examination (responses are typically 1600-2400 words per question). The student submits the completed exam within the given timeframe to the INDI Coordinator. The student's supervisory committee evaluates the examination, and the principal supervisor submits the evaluations along with the pass/fail grade to the INDI Coordinator. Students who fail their comprehensive exam will be given one opportunity to rewrite the exam. Following the exam, the student meets with the supervisory committee to discuss the results of the exam and plans for the thesis proposal.

Component(s):

Thesis Research

INDI 886 Special Topics (3 credits)

Description:

This optional seminar addresses a topic or range of topics of relevance to the research interests of a cross-section of the students enrolled in the program.

INDI 887 Doctoral Thesis Proposal (3 credits)

INDI 890 Doctoral Research and Thesis (66 credits)

Description:

A thesis in an Individualized Program represents a unique contribution to scholarship undertaken while the student is enrolled in the program. The doctoral theses offered at this University in cognate areas will normally provide an appropriate guide to the format and scope of the Individualized Program thesis requirements. In the case of a nontraditional thesis – such as one involving a creative production – the requirement of scholarly contribution still applies. Thus, while a thesis may present a creative work as its central focus, it should nevertheless provide a scholarly discussion placing that work in the context of related ideas and works. As in the case of traditional theses, the nontraditional thesis is submitted to an oral examination where it is exposed to scholarly criticism and where the student is given an opportunity to defend it. The thesis defence must provide for the inclusion of one external examiner at the doctoral level.

INDI 898 Doctoral Directed Research Course (3 credits)

Description:

The student conducts research in a lab or another research site under the direction of his/her principal supervisor.

Notes:

- The content will vary from term to term and from year to year. Students may re-register for this course, provided the course content has changed. Changes in content will be indicated by the course title.

INDI 899 International Doctoral Level Studies (3 credits)

Professional Development Courses

GSPD 601 Graduate Academic Fundamentals (1 credits)

Description:
This seminar provides students with the academic skills to support their successful transition into graduate school. It covers the fundamentals of time management, reading and note taking strategies, critical thinking, researching and writing a literature review.

Component(s):
Workshop; Online (OL)

Notes:

- This course is assessed on a pass/fail basis.

GSPD 602 Essential Leadership Skills (1 credits)

Description:
This seminar introduces students to the process of leadership and the vast array of skills needed to be a leader in a variety of contexts. It covers the fundamental skills that will shape students' leadership style, including emotional intelligence, team dynamics, negotiation and motivation.

Component(s):
Workshop; Online (OL)

Notes:

- This course is assessed on a pass/fail basis.

GSPD 603 Career Exploration (1 credits)

Description:
This seminar begins preparing students for their transition to the job market after graduation. It introduces students to advanced job search techniques, notably networking and informational interviews, and helps them better articulate their skills.

Component(s):
Workshop; Online (OL)

Notes:

- This course is assessed on a pass/fail basis.

GSPD 604 Furthering your professional skills (1 credits)

Description:

This is a self-directed course, where students must complete five professional development activities in one term. Students are required to submit record(s) of completion.

Component(s):

Workshop; Online (OL)

Notes:

- This course is assessed on a pass/fail basis.

Institute for Co-operative Education Courses

WILA 600 Graduate Work-Integrated Learning – Applied Sciences and Education Internship (0 credits)

Description:

The student is enrolled in this course during their first internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Applied Sciences and Education. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Component(s):

Practicum/Internship/Work Term

Notes:

- This course is marked on a pass/fail basis.

WILA 601 Graduate Work-Integrated Learning – Applied Sciences and Education Reflective Learning Activities I (3 credits)

Description:

The student is enrolled in this course during their first internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Applied Sciences and Education and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Component(s):

Practicum/Internship/Work Term

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILA 700 Graduate Work-Integrated Learning – Applied Sciences and Education Internship II (0 credits)

Description:

The student is enrolled in this course during their second internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Applied Sciences and Education. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate,

with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILA 701 Graduate Work-Integrated Learning – Applied Sciences and Education Reflective Learning Activities II (3 credits)

Description:

The student is enrolled in this course during their second internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Applied Sciences and Eduaction and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Component(s):

Practicum/Internship/Work Term

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILB 600 Graduate Work-Integrated Learning – Business and Administration Internship I (0 credits)

Description:

The student is enrolled in this course during their first internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Business and Administration. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Component(s):

Practicum/Internship/Work Term

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILB 601 Graduate Work-Integrated Learning – Business and Administration Reflective Learning Activities I (3 credits)

Description:

The student is enrolled in this course during their first internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Business and Administration and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Component(s):

Practicum/Internship/Work Term

Notes:

- his course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILB 700 Graduate Work-Integrated Learning – Business and Administration II (0 credits)

Description:

The student is enrolled in this course during their second internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Business and Administration. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Component(s):

Practicum/Internship/Work Term

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILB 701 Graduate Work-Integrated Learning – Business and Administration Reflective Learning Activities II (3 credits)

Description:

The student is enrolled in this course during their second internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Business and Administration and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILD 600 Graduate Work-Integrated Learning – Digital Arts Internship I (0 credits)

Description:

The student is enrolled in this course during their first internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Digital Arts. Students are provided guidance and support in preparing for the internship and identifying a relevant placement .The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILD 601 Graduate Work-Integrated Learning – Digital Arts Reflective Learning Activities I (3 credits)

Description:

The student is enrolled in this course during their first internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Digital Arts and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILD 700 Graduate Work-Integrated Learning – Digital Arts II (0 credits)

Description:

The student is enrolled in this course during their second internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Digital Arts. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILD 701 Graduate Work-Integrated Learning – Digital Arts Reflective Learning Activities II (3 credits)

Description:

The student is enrolled in this course during their second internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Digital Arts and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILE 600 Graduate Work-Integrated Learning – Engineering and Computer Science Internship I (0 credits)

Description:

The student is enrolled in this course during their first internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Engineering and Computer Science. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILE 601 Graduate Work-Integrated Learning – Engineering and Computer Science Reflective Learning Activities I (3 credits)

Description:

The student is enrolled in this course during their first internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Engineering and Computer Science and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WLIE 700 Graduate Work-Integrated Learning – Engineering and Computer Science II (0 credits)

Description:

The student is enrolled in this course during their second internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Engineering and Computer Science. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILE 701 Graduate Work-Integrated Learning – Engineering and Computer Science Reflective Learning Activities II (3 credits)

Description:

The student is enrolled in this course during their second internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Engineering and Computer Science and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILF 600 Graduate Work-Integrated Learning – Fine Arts Internship I (0 credits)

Description:

The student is enrolled in this course during their first internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Fine Arts. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer.

Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILF 601 Graduate Work-Integrated Learning – Fine Arts Reflective Learning Activities I (3 credits)

Description:

The student is enrolled in this course during their first internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Fine Arts and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILF 700 Graduate Work-Integrated Learning – Fine Arts II (0 credits)

Description:

The student is enrolled in this course during their second internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Fine Arts. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILF 701 Graduate Work-Integrated Learning – Fine Arts Reflective Learning Activities II (3 credits)

Description:

The student is enrolled in this course during their second internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Fine Arts and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILM 600 Graduate Work-Integrated Learning – Social Sciences, Humanities, and Mathematics Internship I (0 credits)

Description:

The student is enrolled in this course during their first internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Social Sciences, Humanities, and Mathematics. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILM 601 Graduate Work-Integrated Learning – Social Sciences, Humanities, and Mathematics Reflective Learning Activities I (3 credits)

Description:

The student is enrolled in this course during their first internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Social Sciences, Humanities, and Mathematics and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILM 700 Graduate Work-Integrated Learning – Social Sciences, Humanities, and Mathematics Internship II (0 credits)

Description:

The student is enrolled in this course during their second internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Social Sciences, Humanities, and Mathematics. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute

or designate, with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILM 701 Graduate Work-Integrated Learning – Social Sciences, Humanities, and Mathematics Reflective Learning Activities II (3 credits)

Description:

The student is enrolled in this course during their second internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Social Sciences, Humanities, and Mathematics and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILP 600 Graduate Work-Integrated Learning – Psychology Internship I (0 credits)

Description:

The student is enrolled in this course during their first internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Psychology. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILP 601 Graduate Work-Integrated Learning – Psychology Reflective Learning Activities I (3 credits)

Description:

The student is enrolled in this course during their first internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Psychology and a degree-relevant workplace setting. This is a forum for critically

examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILP 700 Graduate Work-Integrated Learning – Psychology Internship II (0 credits)

Description:

The student is enrolled in this course during their second internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Psychology. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILP 701 Graduate Work-Integrated Learning – Psychology Reflective Learning Activities II (3 credits)

Description:

The student is enrolled in this course during their second internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Psychology and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILS 600 Graduate Work-Integrated Learning – Pure Sciences Internship I (0 credits)

Description:

The student is enrolled in this course during their first internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Pure Sciences. Students are

provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILS 601 Graduate Work-Integrated Learning – Pure Sciences Reflective Learning Activities I (3 credits)

Description:

The student is enrolled in this course during their first internship. The student develops career-relevant skills by integrating classroom learning related to the student's specific field within Pure Sciences and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

WILS 700 Graduate Work-Integrated Learning – Pure Sciences II (0 credits)

Description:

WILS 700 Graduate Work-Integrated Learning – Pure Sciences II (0 credits) The student is enrolled in this course during their second internship. This course involves completing a work-integrated learning placement directly related to observing, acquiring, or implementing skills related to the student's specific field within Pure Sciences. Students are provided guidance and support in preparing for the internship and identifying a relevant placement. The Institute monitors the student during the internship, and the student is formally evaluated by the Director of the Institute or designate, with input from the employer. Students are paid for the work performed.

Notes:

- This course is marked on a pass/fail basis.
- While this course carries no credit value, enrolment indicates that the student maintains full-time status.

WILS 701 Graduate Work-Integrated Learning – Pure Sciences Reflective Learning Activities II (3 credits)

Description:

The student is enrolled in this course during their second internship. The student develops career-relevant skills by integrating

classroom learning related to the student's specific field within Pure Sciences and a degree-relevant workplace setting. This is a forum for critically examining the workplace, relatability between the student's academic studies and workplace, setting learning goals, reflecting on academic and professional experiences and objectives, self-evaluation, and disciplined inquiry.

Notes:

- This course is marked on a pass/fail basis.
- This course carries 3 complementary credits, and as such does not count towards fulfilling the academic credit requirements for the student's program of study.

Interfaculty Courses

NANO 610 Principles of Nanoscience and Nanotechnology (6 credits)

Prerequisite/Corequisite:

Enrolment in the MSc/MASc in Nanoscience and Nanotechnology is required.

Description:

This course introduces all students in the MSc/MASc Nanoscience and Nanotechnology program to the core science and engineering principles required for working at the boundary between these two nano-disciplines. It serves to ensure all students have a solid theoretical foundation in physical science and engineering principles to understand advanced topics in nanoscience and/or nanotechnology. It is comprised of four modules (two science-based and two engineering-based). Case studies complement lectures and provide students with a cross-section of backgrounds, disciplines and training. Emphasis is placed on collaborative work, learning to communicate across boundaries, directed learning and literature survey techniques. Course modules can include, but are not limited to: chemical and physical properties of materials at the nanoscale, synthesis of nanomaterials and nanostructures, nanomaterials characterization, introduction to quantum physics of nanomaterials, current limitations in nanoscience, interaction of biological systems with nanomaterials, toxicity and environmental risks of nanomaterials, environmental implications of engineered nanomaterials, nanomanufacturing, and nanotechnology at the food-energy-water nexus.

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